Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office - Updated

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Errata: There are two data entry errors in Table 1. The number of Continuation Applications for 1984 should have been 9509, not 6509, and the number of Continuation-in-Part Applications in 1989 should have been 9282, not 8282. The overall effect of these errors on the reported calculations is insignificant, and the conclusions and recommendations are unaffected. Copies of Tables 1, 3, and 4, and Figures 3, 4, 5, 6, and 7 revised to correct for the erroneous data entries are included at the end of the paper. Tables 2, 5, and 6, and Figures 1 and 2 were not affected by the erroneous data entries.

Continuing Patent Applications and the U.S. Patent and Trademark Office—Updated

Cecil D. Quillen, Jr. and Ogden H. Webster*

Introduction

The *Federal Circuit Bar Journal*, in its August 2001 issue, published a study in which we examined estimated Allowance Percentages[1] and Grant Rates[2] for the United States Patent and Trademark Office (USPTO) for the years 1993–1998, taking into account refiled continuing patent applications.[3] The study used unpublished data on refiled continuing patent applications for 1993–1998 that the USPTO provided pursuant to an inquiry it treated as a Freedom of Information Act (FOIA) request, considered in conjunction with USPTO Annual Report data for the same years.[4] The study also com-

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[1] Allowance Percentage, as used throughout this and previous studies, describes the number of applications allowed divided by the number of applications filed, with appropriate corrections that account for refiled continuing applications.

[2] The Trilateral Website defines Grant Rate as "the number of applications that were granted during the reporting period, divided by the number of disposals in the reporting period (applications granted plus those abandoned or refused)." 2004 Trilateral Statistical Report 63, http://www.trilateral.net/tsr/tsr_2004/tsr2004.pdf (referring to an EPO model).

[3] Cecil D. Quillen, Jr. & Ogden H. Webster, *Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office*, 11 Fed. Cir. B.J. 1, 3 (2001). This was, so far as we know, the first published study of USPTO examination performance that took refiled continuing applications into account. The USPTO does not publish examination performance statistics that take continuing applications into account, nor does it publish data on the number of refiled continuing applications filed with it each year. *Id.* at 1. Thus, it is not possible from published USPTO data to determine the number of continuing applications filed, or to estimate USPTO examination performance that takes refiled continuing applications into account. *Id.*

[4] *Id.* at 3, 7; *see* Letter from Danita Ingram, Paralegal Specialist, U.S. Dep't of Commerce, Patent and Trademark Office, to author (Jan. 27, 2000) (referencing "Freedom of Information Act (FOIA) Request No. 00-044") (on file with authors). The USPTO's Annual

pared estimated Allowance Percentages and Grant Rates for the USPTO with estimated Allowance Percentages and Grant Rates for the European Patent Office (EPO) and the Japanese Patent Office (JPO).[5]

In its August 2002 issue, the *Federal Circuit Bar Journal* published a second study in which we examined the progress over time of estimated Allowance Percentages and Grant Rates at the USPTO.[6] In conjunction with USPTO Annual Report data for those years, we took refiled continuing applications into account and used unpublished data on refiled continuing applications for 1980–2000 provided by the USPTO pursuant to FOIA requests.[7] In the second study, we also compared estimated Allowance Percentages and Grant Rates for the USPTO over time to corresponding measures over time for the EPO and the JPO.[8] Richard Eichmann was a coauthor of the second study.[9]

We have since obtained updated data from the USPTO through its 2005 fiscal year,[10] and the purpose of this Article is to update our earlier studies and compare the updated results for the USPTO to corresponding updated results for the EPO and the JPO through 2004.[11] We have estimated a new measure we have termed *Patent Percentage*, which is analogous to our previ-

Reports are available online at http://www.uspto.gov/web/offices/com/annual/index.html (last visited Apr. 13, 2006).

[5] Quillen & Webster, *supra* note 3, at 3, 21 tbl.7.

[6] *See generally* Cecil D. Quillen, Jr., Ogden H. Webster & Richard Eichmann, *Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office—Extended*, 12 Fed. Cir. B.J. 35 (2002).

[7] *See generally id.*; Letter from Robert Fawcett, Paralegal Specialist, U.S. Patent and Trademark Office, Office of General Counsel, to author (Oct. 15, 2001) (referencing "Freedom of Information Act (FOIA) Request No. 01-327") (on file with authors); Letter from Robert Fawcett, Paralegal Specialist, U.S. Patent and Trademark Office, Office of General Counsel, to author (Sept. 13, 2001) (referencing "Freedom of Information Act (FOIA) Request No. 01-291") (on file with authors); Letter from Michael Briskin, Associate Counsel for General Law, U.S. Patent and Trademark Office, Office of General Counsel, to author (July 18, 2001) (referencing "Freedom of Information Act (FOIA) Request No. 01-183") (on file with authors).

[8] Quillen et al., *supra* note 6, at 38.

[9] *Id.* at 35.

[10] Letter from Robert Fawcett, Program Manager, U.S. Patent and Trademark Office, Office of General Counsel, to author (Dec. 22, 2005) (referencing "Freedom of Information Act (FOIA) Request No. 06-062") (on file with authors).

[11] At the time of publication, 2005 data were not yet available for the EPO or the JPO.

ously estimated Allowance Percentages, except that it is based on issued patents rather than allowed applications.[12]

The USPTO 1981 fiscal year was chosen as the beginning date for this updated study because the December 22, 2005 FOIA response on which our updated studies are based noted that the USPTO has no data for 1980 and earlier for some of the analyses reported herein, and that some of the data it has for 1980 may not be reliable.[13] In Part I, we describe our earlier studies. In Part II, we briefly review some studies that appeared after our second study was published. In Part III, we present our updated findings.

I. Earlier Studies

A. 2001 Study

Our first study, as noted, was based on FOIA data on refiled continuing patent applications for 1993–1998 in conjunction with USPTO Annual Report data for the same years. The FOIA data used in the first study revealed that refiled continuing applications comprised 28.4% of the patent applications filed in 1993–1998.[14] The remainder, 71.6%, were original applications that did not claim the filing date of an earlier filed patent application.[15]

The first study determined upper bound, lower bound, and intermediate estimates for Allowance Percentages and Grant Rates for the USPTO for 1993–1998, corrected for refiled continuing applications, on various as-

[12] Patents are not issued until after their applications have been allowed. The time interval between application allowance and patent issuance, which is devoted to necessary administrative requirements, can be several months. When application allowances and patent issuances are rising, which has been the case throughout most of the 1981–2005 period of this study, the number of patents issued in any time period is usually less than the number of applications allowed in the same time period. *See infra* fig.2. A consequence is that estimated Patent Percentages for a given time period (determined by dividing patents issued by the appropriate number of applications filed) are usually lower than estimated Allowance Percentages for the same time period (determined by dividing applications allowed by the appropriate number of applications filed) because of the lower number of patents issued in the given time period.

[13] *See* Letter from Robert Fawcett to author, *supra* note 10.

[14] Quillen & Webster, *supra* note 3, at 7. Such applications, except for divisional applications, are unique to the United States and permit patent applicants to avoid final patentability decisions by refiling and starting the patent examination process all over again. *See id.* at 1. Refiled continuing applications, because their subject matter has already been examined by the USPTO, or could have been, represent rework for the USPTO. *Id.* at 7–8.

[15] *See id.* at 7.

sumptions specified in the study.[16] The assumptions were the only plausible assumptions given the available data.

Allowance Percentages for the USPTO for 1993–1998, corrected for continuing applications, and with no allowance for prosecution time, were estimated to be 69%, 75%, or 82%, depending on the underlying assumptions.[17] In what we termed a "more refined" calculation that assumed a two-year lag between application filing and application allowance, the estimated corrected Allowance Percentages for the USPTO for 1993–1998 were 78%, 86%, or 95%, again depending on the underlying assumptions.[18]

USPTO Grant Rates for 1993–1998, corrected for continuing applications, were estimated to be 80%, 87%, or 97%, depending on the underlying assumptions specified in the study.[19] The uncorrected Grant Rate for the USPTO for 1993–1998 was 66%.[20]

The study also compared estimated Allowance Percentages and estimated Grant Rates for the USPTO to those of the EPO and the JPO and compared the estimated USPTO Allowance Percentages to the 1977 cohort of German patent applications.[21]

For the EPO for 1978–1999, our study found that the estimated Allowance Percentage (based on granted patents, not allowed applications) with no prosecution lag was 60%.[22] With a two-year prosecution lag, the Allowance Percentage for the EPO was 68%.[23] For the JPO for 1988–1999, our study found that the estimated Allowance Percentage (based on Registration

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[16] *Id.* at 9–10, 12–13 (discussing underlying assumptions).

[17] *Id.* at 9–10, 17–18 tbl.2.

[18] *Id.* at 10, 17–18 tbl.2. Our "refined" calculation of Allowance Percentage allowed for prosecution time between application filing and application allowance. *See id.*

[19] *Id.* at 12–13, 20–21 tbl.6.

[20] *Id.* at 12, 16 tbl.1.

[21] *Id.* at 21 tbl.7.

[22] *Id.* at 11.

[23] *Id.* The *EPO Annual Report* reports only patents granted and not applications allowed. 2004 EPO Ann. Rep. tbl.7.6, *available at* http://annual-report.european-patent-office.org/2004/_pdf/epo_anrep04.pdf (last visited Apr. 13, 2006). Allowance Percentages estimated for the EPO in our first two studies were based on European applications filed and patents granted as reported on the EPO website, rather than applications allowed, because application allowances are not reported. *See id.*; Quillen & Webster, *supra* note 3, at 10–11; Quillen et al., *supra* note 6, at 45, 53. Since publication of our earlier studies, we have learned that the number of patents granted as reported by the EPO includes Patent Cooperation Treaty (PCT) patents as well as European patents, with the consequence that the Allowance Percentages reported in our first two studies were overstated. *See* 2004 EPO Ann. Rep. *supra*, tbl.7.6. In this updated study, Patent Percentages for the EPO were determined by dividing the number of patents granted by the total European and Euro-PCT applications reported

Decisions) with no prosecution lag was 57%.[24] With a two-year prosecution lag, the estimated Allowance Percentage for the JPO was 65%.[25] Others had previously reported that the German Patent Office granted patents on 41.7% of the applications filed in its office in 1977.[26]

In our first study we summarized our findings in Table 7.[27] We concluded that: (1) more than one-fourth of the examination workload of the USPTO (i.e., the 28.4% that was continuing applications) related to subject matter that claimed the filing date of an earlier application and therefore already had been (or could have been) examined by the USPTO, and thus represented rework imposed on the USPTO by the applicants who refiled continuing applications; (2) examination rigor at the USPTO over the 1993–1998 period, whether measured by corrected Allowance Percentage or corrected Grant Rate, was lower than for the EPO or JPO for the time periods for which we had data for those offices (or for the German Patent Office for its 1977 application cohort); and (3) the lower examination rigor for the USPTO—i.e., the higher Allowance Percentages and Grant Rates—might, at least to some extent, be a result of the inability of the USPTO to obtain final decisions on the patentability of applications presented to it because applicants could always avoid such final decisions by refiling their applications, leaving the

and by the total European and Euro-PCT (International Phase) applications reported. *See infra* tbl.3.

[24] Quillen & Webster, *supra* note 3, at 11.

[25] *Id.* The JPO *Annual Report* separately reports decisions of registration and patent registrations. Japan Patent Office, 2005 Ann. Rep. pt.5, Gen. Stat. Tables tbl.1, *available at* http://www.jpo.go.jp/shiryou_e/index.htm (last visited Apr. 13, 2006). JPO Allowance Percentages reported in our first two studies were determined based on the number of decisions of registration, not the total number of patent registrations. *See* Quillen & Webster, *supra* note 3, at 11; Quillen et al., *supra* note 6, at 45, 53. We have since learned that decisions of registration are allowances by a patent examiner and do not include patent registrations following an appellate decision. Japan Patent Office, *supra*, pt.5 Examination and Appeal/Trial Examination Flowchart. Patent registrations encompass all patents registered, including those registered following allowance by a patent examiner and those registered following a favorable appellate decision. *See id.* Patent Percentages for the JPO in this updated study were determined by dividing the total number of patent registrations by the number of examination requests. As a consequence, Allowance Percentages for the JPO reported in our first two studies are understated in comparison to the Patent Percentages reported in this updated study. *See infra* tbl.3.

[26] Dietmar Harhoff, Frederic M. Scherer & Katrin Vopel, *Citations, Family Size, Opposition and the Value of Patent Rights*, 32 Res. Pol'y 1343, 1352 (2003).

[27] Quillen & Webster, *supra* note 3, at 21 tbl.7.

USPTO in the position of being able to rid itself of such persistent applicants only by allowing their applications.[28]

The policy questions implicated by these findings were (1) whether it was desirable for examination rigor at the USPTO to be lower than the EPO or JPO (or the German Patent Office), and, if not, what steps should be taken to increase examination rigor at the USPTO; (2) whether the system of continuing applications at the USPTO, which is unique to the United States, imposes rework on the USPTO, and leaves it unable to obtain final patentability determinations, should be perpetuated; (3) whether it was desirable for the United States to have a patent system in which a patent is granted for nearly every original application, and, if so, why the U.S. shouldn't simply go to a registration system and eliminate the expense and delay associated with our examination system; and (4) whether the "clear and convincing evidence standard" for overcoming the statutory presumption of validity is appropriate given the lack of examination rigor at the USPTO.[29]

B. 2002 Study

Our second study was motivated by the observation that virtually every published study of patent-related statistics over time showed a major discontinuity that coincided with the advent of the United States Court of Appeals for the Federal Circuit (Federal Circuit).[30] Our second study asked whether there were changes over time in the rigor of USPTO patent examinations and, if so, whether those changes could be attributed to the Federal Circuit and its lowered standards for patentability.[31] To that end, we sought continuing applications data similar to what we had been provided for the 1993–1998 period, but for 1975–2000, and Annual Report data going back to 1975.[32] Apparently the USPTO does not have records from which continuing applications data can be reconstructed before 1980, but we obtained the data for 1980–2000, with a caution that the 1980 data might be unreliable.[33] We were eventually provided the requested Annual Report data going back to 1975.

We found and reported in our second study that when continuing applications are taken into account, USPTO examination rigor, measured by estimated Allowance Percentage or estimated Grant Rate, declined rapidly following formation of the Federal Circuit in 1982 (i.e., Allowance Percent-

[28] *See id.* at 13–14, 16 tbl.1, 21 tbl.7.

[29] *See id.* at 13–15.

[30] *See* Quillen et al., *supra* note 6, at 36–37.

[31] *Id.* at 36.

[32] *Id.*

[33] *Id.* at 36–37.

ages and Grant Rates both increased), then stabilized at higher Allowance Percentages and Grant Rates than had previously prevailed, and thereafter oscillated around the higher values.[34]

We also observed that application filings, application allowances, and patent issuances all rose after formation of the Federal Circuit.[35] These observations confirmed and extended what others previously reported.[36] We also observed that the portion of continuing applications increased from about 15% in 1980 to about 28% in 2000.[37] Divisional applications were flat throughout the entire period at about 5–6% except for 1995 when they spiked in advance of the effective date of the twenty-year from first filing patent term.[38]

We also determined estimated Allowance Percentages over time for the EPO and JPO, and compared them to those estimated for the USPTO.[39] Estimated Allowance Percentages for the EPO (based on granted patents, not allowed applications) were flat at about 55% from 1984 through 1992 when they began a rapid rise, reaching 97% in 1997, but rapidly declined to about 74% by 2000.[40] USPTO Allowance Percentages (based on original applications) reached about 90% by 1987 (and thereafter oscillated above and below that number), and were exceeded by EPO Allowance Percentages only in 1995–1997.[41] JPO Allowance Percentages (commencing in 1992) were flat at about 55% through 1995, began a rapid rise to a peak of about 90% in 1998, and declined to about 64% by 2000.[42] At no time from 1992

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[34] *See* Quillen et al., *supra* note 6, at 43–47 figs.5–8.

[35] *See id.* at 39–40 figs.1–2.

[36] *See id.* at 39 & nn.25–26 (citing Jon F. Merz & Nicholas M. Pace, *Trends in Patent Litigation: The Apparent Influence of Strengthened Patents Attributable to the Court of Appeals for the Federal Circuit*, 76 J. Pat. & Trademark Off. Soc'y 579, 585 (1994) and Robert Hunt, *Patent Reform: A Mixed Blessing for the U.S. Economy?*, Bus. Rev. Fed. Res. Bank Philadelphia, Nov.-Dec. 1999, at 17 fig.2 "Patent Activity").

[37] *See id.* at 42 fig.4.

[38] *See id.* at 42 & fig.4 & n.29.

[39] *See id.* at 45 fig.7.

[40] *See id.* at 53 app.III. EPO Allowance Percentages were based on issued patents rather than allowed applications for the reason previously noted. *See supra* note 22. The denominator/divisor in the calculation of EPO Allowance Percentages was the number of European Applications filed and did not take into account Euro-PCT applications filed at the EPO. *See id.*

[41] *See* Quillen et al., *supra* note 6, at 53 app.III. USPTO Allowance Percentages based on original plus divisional applications reached about 85% in 1987 and thereafter oscillated above and below that number. *See id.* at 43–44 figs.5 & 6.

[42] *Id.* at 53 app.III. JPO Allowance Percentages, as noted in note 25, were determined based on registration decisions, not the total number of patent registrations.

through 2000 did Allowance Percentages for the JPO exceed USPTO Allowance Percentages based on original applications.[43]

Regarding Grant Rates, we observed again that Grant Rates reported by the USPTO on the Trilateral Co-operation Website (Trilateral Website), which are the only performance measures reported by the USPTO, are not corrected for continuing applications.[44] We found that USPTO Grant Rates corrected for continuing applications consistently exceeded Grant Rates reported by the EPO and JPO on the Trilateral Website by about 25 to 30 percentage points for the 1995–2000 period for which data were then available on the Trilateral Website.[45]

In our first study we noted the possibility of a patent being granted on both a continuation application and its parent, even though both are supposed to be identical and for the same invention, and the fact that it was not possible from the USPTO FOIA and Annual Report data to determine the number of such patents, if any.[46]

In the interim between the first and second studies we were given access to a database compiled by John Allison and Mark Lemley that enabled us to estimate the number of such patents and to estimate adjusted corrected Allowance Percentages and Grant Rates.[47] The 95% estimated Allowance Percentage was reduced to 92% when adjusted to take such continuation patents into account, and to 83% when adjusted for all patents that claimed the filing date of an earlier patented application.[48] The 97% estimated Grant Rate was reduced to 95% when adjusted to take such continuation patents into account, and to 85% when adjusted to take into account all continuing patents that claimed the filing date of an earlier patented application.[49] We noted in our second study that the 83% adjusted corrected Allowance Percentage and the 85% adjusted corrected Grant Rate were approximately the same as the corresponding values reported in the first study when all divisional

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[43] Quillen et al., *supra* note 6, at 53 app.III.

[44] *See id.* at 47.

[45] *See id.* at 47–48 & fig.9.

[46] Quillen & Webster, *supra* note 3, at 4 n.17. The USPTO *Manual of Patent Examining Procedure* states that "[a] continuation is a second application for the *same* invention claimed in a prior nonprovisional application and filed before the original prior application becomes abandoned or patented. . . . The disclosure presented in the continuation must be the *same* as that of the original application . . . ." U.S. Patent & Trademark Office, U.S. Dep't of Commerce, Manual of Patent Examining Procedure § 201.07 (7th ed., rev. 1 2000) (emphasis added).

[47] *See* Quillen et al., *supra* note 6, at 37–38.

[48] *See id.* at 38.

[49] *Id.*

applications were treated as if they were original applications.[50] We also noted that these adjusted corrected values were still above the corresponding values for the EPO and JPO.[51]

A significant question not answered by our second study is the extent to which the lowered examination rigor at the USPTO—i.e., the increases in Allowance Percentages and Grant Rates that followed the advent of the Federal Circuit—is a consequence of the lowered standards for patentability promulgated by the Federal Circuit, or the increase in the proportion of continuing applications filed at the USPTO.

II. Other Studies

A. The PTO/Clarke Paper

The USPTO published a paper in the April 2003 issue of the *Journal of the Patent and Trademark Office Society* (*JPTOS*) under the name of Robert A. Clarke (PTO/Clarke paper) criticizing the conclusions and methodology of our first paper.[52] The PTO/Clarke paper did not mention our second study although it was published in August 2002, eight months prior to the April 2003 PTO/Clarke paper, and it anticipated some of the criticisms of the PTO/Clarke paper.[53]

The PTO/Clarke paper relied on previously unpublished USPTO data for 1994–2000 that apparently was compiled specifically for that paper.[54] The data provided to us by the USPTO on which we relied for our first study was for 1993–1998.[55] There was no explanation for why a different time period was chosen for the PTO/Clarke paper.

The PTO/Clarke paper did not determine Allowance Percentages but rather calculated what it termed "Likelihood of U.S. Patent Grant per Original

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[50] *See id.* at 38. The Allowance Percentage reported in the first paper was 86% and the Grant Rate was 87%. *See* Quillen & Webster, *supra* note 3, at 10, 13.

[51] *See* Quillen et al., *supra* note 6, at 38.

[52] *See* Robert A. Clarke, *U.S. Continuity Law and its Impact on the Comparative Patenting Rates of the U.S., Japan and the European Patent Office*, 85 J. Pat. & Trademark Off. Soc'y 335, 336 (2003).

[53] *See id.*; Quillen & Webster, *supra* note 3, at 1. One of the PTO/Clarke criticisms of our first article was that we used different time periods for the USPTO, the EPO, and the JPO analyses. Clarke, *supra* note 52, at 340. That observation is correct. We used all of the data available to us at the time of our first study. Our second study, which was ignored by the PTO/Clarke paper although it had been published eight months earlier, included year-by-year comparisons of Allowance Percentages and Grant Rates for all three patent offices. Quillen et al., *supra* note 6, at 45 fig.7, 48 fig.9.

[54] *See* Clarke, *supra* note 52, at 337.

[55] *See supra* notes 3–4 and accompanying text.

Application Filing."[56] This "Likelihood" was determined by dividing what the paper termed "Original UPR Patents," (UPR = utility, plant, and reissue patents) by the number of original applications, with a two-year prosecution lag.[57] "Original UPR Patents" were patents that did not claim the priority date of an earlier patented application.[58] There was no credible explanation of why the remaining patents—i.e., those based on refiled applications that claimed the priority date of an earlier patented application were omitted.[59] The PTO/Clarke paper reported a composite "Likelihood" value for the 1994–2000 period (with a two-year prosecution lag) of 74.76%.[60] If all of the patents had been included, the "Likelihood" value (with a two-year prosecution lag) would have been 88%.[61]

The PTO/Clarke paper also calculated and reported similar "Likelihood" values for the EPO and the JPO.[62] The overall value for the EPO utilizing a two-year prosecution lag, i.e., patents granted in 1996–2000 divided by the number of European applications filed in 1994–1998 (which does not include any Patent Cooperation Treaty (PCT) applications), was reported to be 82.78%.[63] The overall value for the JPO on the same basis was reported to be 85.54%.[64] These values were then compared to the 74.76% "Likelihood" calculated for the USPTO to conclude that "an applicant for patent in the USPTO has a similar likelihood of obtaining a U.S. patent and a counterpart patent from the other major IP granting Offices."[65]

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[56] Clarke, *supra* note 52, at 340.

[57] *Id.* at 339–40.

[58] *See id.*

[59] Such patents are every bit as capable of being infringed as are the patents granted on their parent applications. The effect was to exclude 15% of the issued patents from the calculation (103,377 divided by 667,524 equals 15.5%). *Id.* at 338. Interestingly enough, in our analysis of the Allison-Lemley random sample in connection with our second study, we inspected the first pages of all 1000 of the patents in the Allison-Lemley random sample and identified 297 patents that had been granted on continuing applications and found that patents had also been granted on 92 of their parent applications, i.e., 9.2% of the 1000. Quillen et al., *supra* note 6, at 38. We have no explanation for the difference between our 9.2% and the 15% reported in the PTO/Clarke paper.

[60] Clarke, *supra* note 52, at 340.

[61] *See infra* tbl.2. We calculated the 88% value based on the PTO/Clarke data. *See* Clarke, *supra* note 52, at 339–40.

[62] Clarke, *supra* note 52, at 341.

[63] *Id.*

[64] *Id.*

[65] *Id.* at 342. The OECD study and the Jensen, Palangkaraya, and Webster study, both discussed *infra*, reach strikingly different conclusions from those of the PTO/Clarke paper. *See generally* Organization for Econ. Co-Operation and Dev., Patents and

The EPO and JPO values, however, were based on all of the patents issued by those patent offices in the relevant years. If the comparison had been based on all patents issued by the USPTO in the relevant years, the USPTO "Likelihood" number, as previously noted, would have been 88% rather than the reported 74.76%, higher than the values reported for either the EPO or JPO.[66] This may lead one to conclude that the comparison made in the PTO/Clarke paper that excluded 15% of the USPTO patents granted in the relevant years was misleading.[67]

The Allowance Percentage for the PTO/Clarke sample (1994–2000) was not reported in the PTO/Clarke paper. We calculated it based on the number of original UPR applications reported in the PTO/Clarke paper and USPTO Annual Report data on the number of applications allowed. We found it to be 96%, based on original applications and with a two year prosecution lag—almost the same as the 95% Allowance Percentage we estimated for the 1993–1998 sample available to us for our first study.[68]

The PTO/Clarke paper also calculated and reported what it termed "USPTO Issue Rate Relative to Disposals per Year."[69] This was calculated by dividing the number of "USPTO Original Patents" by the sum of the number of "Original

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Innovation: Trends and Policy Challenges 1 (2004), *available at* www.oecd.org/dataoecd/48/12/24508541.pdf [hereinafter OECD Study]; Paul H. Jensen, Alfons Palangkaraya & Elizabeth Webster, *Disharmony in International Patent Office Decisions*, 15 Fed. Cir. B.J. 679 (2006); *see* Parts II.B. and II.D.

[66] *See supra* notes 60–61 and accompanying text.

[67] The desire to produce results favorable to the USPTO may have led to the selection of the different time period for the PTO/Clarke analysis. Inspection of Figure 7 of our second study reveals that 1996–2000 were years in which Allowance Percentages for the EPO and JPO were elevated in comparison to the 1993–1998 years for which we had USPTO data for our first study. *Compare* Quillen et al., *supra* note 6, at 45 fig.7, *with* Quillen & Webster, *supra* note 3, at 17–19.

[68] *See infra* tbl.2; Quillen & Webster, *supra* note 3, at 3. The PTO/Clarke paper stated that "the Quillen and Webster paper incorrectly concludes that up to 95% of all original U.S. non-provisional applications are patented, either in the first U.S. filing or in a subsequently refiled application." Clarke, *supra* note 52, at 336–37. This misstated our conclusion. We concluded that the "number of UPR applications allowed in fiscal years 1995–1998 [506,545] was 95% of the number of original UPR applications filed in fiscal years 1993–1996 [533,666]." Quillen & Webster, *supra* note 3, at 3, 17 tbl.2. That conclusion is correct and irrefutable. *See id.* at 17–18 tbl.2. The PTO/Clarke paper also asserted that our analysis involved double counting. Clarke, *supra* note 52, at 338. That assertion is incorrect. We counted each allowed application only once, whether based on an original application or a continuing application.

[69] Clarke, *supra* note 52, at 343.

Patents" and the number of "Total final disposals without refiling."[70] The overall value for 1996–2000 was 73.93%.[71] The number of "Original Patents," as previously noted, excludes any patents for which a parent application had already been patented.[72] If those patents had been included, the "Issue Rate Relative to Disposals" would have been 77%.[73]

The PTO/Clarke Issue Rates, based only on "Original Patents," were then compared to Grant Rates for the EPO and JPO reported on the Trilateral Website.[74] The latter, for reasons not explained in the PTO/Clarke paper, were mischaracterized as "Issue Rates Relative to Disposals."[75] Even these comparisons were unfavorable. The averaged Grant Rates for the EPO and JPO were 64.5% and 63.8%, respectively.[76] Both are well below the 73.93% "USPTO Issue Rate" put forward by the PTO/Clarke paper, which is grossly inconsistent with the conclusion in the PTO/Clarke paper (based on comparing "Likelihoods" calculated for the USPTO, the EPO, and the JPO) that "an applicant for patent in the USPTO has a similar likelihood of obtaining a U.S. patent and a counterpart patent from the other major IP granting Offices."[77]

The PTO/Clarke comparison between its "USPTO Issue Rates" and the Grant Rates reported for the EPO and the JPO on the Trilateral Website is doubly misleading. Grant Rates for the EPO and JPO (and the USPTO), as reported on the Trilateral Website, are based on applications allowed, not patents granted. Throughout the entire period under study (with the exception of 1981, 1982, 1987, 2000, and 2001), the number of patents granted in any year by the USPTO was less than the number of applications allowed

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[70] *Id.* at 342–43. The number of "Total final disposals without refiling" was the sum of the number of application "Disposals in First Prosecution (and not refiled)" and the number of application "Disposals in continuing application or RCE/R.129 with no patented parents (and not refiled)." *Id.* at 343.

[71] *Id.*

[72] *Id.* at 337.

[73] *See infra* tbl.2. The 77% value is the "Issue Rate Relative to Disposals—All UPR Patents" for the PTO/Clarke data. *Id.* The value based on the most recent FOIA data is 80%. *Id.*

[74] Clarke, *supra* note 52, at 343.

[75] *Id.* Grant Rates, as previously noted, are defined on the Trilateral Website as "the number of *applications* that were granted during the reporting period, divided by the number of disposals in the reporting period (*applications* granted plus those abandoned or refused)." Trilateral Statistical Report, *supra* note 2, at 63 (emphasis added). The "Issue Rates" reported in the PTO/Clarke article are based on issued patents, not allowed applications, and thus do not conform to the Trilateral Website definition for Grant Rates and are not comparable to reported Grant Rates that do. *See* Clarke, *supra* note 52, at 337.

[76] *See* Clarke, *supra* note 52, at 343 (averages of 1996–2000 data).

[77] *Id.* at 342–43.

in that year, which in and of itself would reduce the Issue Rate percentages calculated for the USPTO in comparison to Grant Rates.[78] The Grant Rates reported for the EPO and the JPO are based on *all* allowed applications in the relevant time period, while the 73.93% "USPTO Issue Rate" in the PTO/Clarke paper excludes all U.S. patents claiming benefit of the filing date of an application on which an earlier patent had been granted.[79] This calculation thus understates the number of patents granted by the USPTO and the resulting "USPTO Issue Rate."[80] In effect, the comparison is a misleading apples-to-oranges comparison.

Inexplicably, the PTO/Clarke paper did not calculate Grant Rates for the USPTO although data in the paper, in conjunction with Annual Report data for the relevant years, are sufficient to determine a USPTO Grant Rate for those years.[81] Specifically, USPTO Annual Reports publish the annual number of applications allowed each year and the PTO/Clarke paper set forth the number of applications abandoned without refiling—i.e., net abandonments.[82] A Grant Rate for the USPTO for each of the years for which there are such data in the PTO/Clarke paper can be determined by dividing the number of applications allowed in any year (from USPTO Annual Reports) by the total number of application disposals in that year.[83] This calculation of a Grant Rate for the USPTO for 1996–2000, the same period for which the PTO/Clarke paper calculated "Issue Rates," is set forth in Table 2.[84]

The overall Grant Rate for the USPTO for 1996–2000, based on the data in the PTO/Clarke paper in conjunction with USPTO Annual Report data for 1996–2000, is 78%.[85] The overall Grant Rate for 1996–2000, based on current data, is 81%.[86] Both are above the 73.93% "USPTO Issue Rate" put forward in the PTO/Clarke paper, and both are well above the 64.5% and 63.8% averaged Grant Rates for the EPO and JPO, respectively, for those years.[87]

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[78] *See infra* fig.2.

[79] *See* Clarke, *supra* note 52, at 342–43.

[80] *See id.*

[81] *See id.* at 343; *infra* tbl.1 (United States Patent and Trademark Office Data and Calculations).

[82] *See* Clarke, *supra* note 52, at 343; *infra* tbl.1.

[83] Disposals, as used throughout this study, are the sum of the number of applications allowed and the total of the applications abandoned without refiling.

[84] *See infra* tbl.2; *see also* Clarke, *supra* note 52, at 343.

[85] *See infra* tbl.2.

[86] *See id.*

[87] *See* Clarke, *supra* note 52, at 343. The conclusion to be drawn is that examination rigor at the EPO and JPO for 1996–2000 was substantially higher than examination rigor at the USPTO for those years.

The USPTO periodically revises its unpublished historical data to correct for errors as they become apparent. The data on which the PTO/Clarke study was based has been revised, perhaps several times, and those revisions, as reflected in the December 22, 2005 FOIA data on which this updated study is based, are set forth in Table 2.[88] Calculations of "Likelihoods," Allowance Percentages, Issue Rates, and Grant Rates based on the revised data are also in Table 2. The corrected two-year lag Allowance Percentage based on original applications—i.e., the number of applications allowed in 1996–2000, divided by the number of Original Applications filed in 1994–1998—fell from 96% to 95%.[89] The overall Grant Rate for 1996–2000, as noted previously, rose from 78% to 81%.[90]

B. The OECD Study

The Organisation for Economic Co-operation and Development (OECD) published a study in 2004 that included a comparison between estimated grant rates for the EPO and the USPTO for comparable application populations, i.e., for applications filed in the EPO that claimed priority to an application previously filed in the USPTO.[91]

In effect, the study found that grant rates for essentially the same application populations, i.e., EPO applications claiming a United States priority date and the corresponding USPTO applications, were about 30 percentage points higher in the USPTO than in the EPO.[92] EPO applications claiming a U.S. priority had a lower grant rate in the EPO (by about 6–8 percentage points) than the average EPO grant rate.[93] Both calculations indicate significantly lower standards for patentability at the USPTO than at the EPO.

The year-by-year results of the study are shown in Figure 7 of the OECD study, which depicts EPO grant rates for 1982–1994 and USPTO grant rates for 1982–1998.[94] The graphical depictions in Figure 7 suggest that the disparity in grant rates between the USPTO and the EPO has widened over time.[95] The EPO Grant Rate for EPO patents with at least one U.S. priority declined from about 65% in 1982 to about 50% in 1994, while the USPTO grant rate remained between about 80% and about 90% from 1982 to 1998.[96]

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[88] *See supra* note 7, 10–11 and accompanying text; *infra* tbl.2.

[89] *See infra* tbl.2.

[90] *See id.*

[91] OECD Study, *supra* note 65, at 19 fig.7.

[92] *Id.* at 18.

[93] *Id.*

[94] *Id.* at 19 fig.7.

[95] *See id.*

[96] *Id.*

The overall EPO grant rate declined from about 70% in 1982 to about 60% in 1994.[97] These overall values for EPO grants rates are consistent with the later study by Dietmar Harhoff and Stefan Wagner, published in 2005, which found that patents were granted on 63.5% of EPO applications filed between 1978 and 1995.[98]

The disparity in grant rates at the EPO reported in the OECD study is consistent with later studies by Bronwyn Hall and Dietmar Harhoff,[99] and Stuart Graham and Dietmar Harhoff.[100] The Hall/Harhoff study reported and depicted a growing disparity in grant rates at the EPO for applications claiming a U.S. priority date and those claiming priority from a country other than the United States.[101] The Graham/Harhoff study found that European patents were granted on 80.3% of a group of European patent applications corresponding to a group of litigated U.S. patents, and on 67.9% of a control group of European patent applications corresponding to a group of non-litigated U.S. patents.[102]

The finding of the OECD study that EPO grant rates for patents with U.S. priorities were "around 30 percentage points" higher in the USPTO than the EPO is grossly inconsistent with the conclusion in the PTO/Clarke paper that "an applicant for patent in the USPTO has a similar likelihood

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[97] *Id.*

[98] Dietmar Harhoff & Stefan Wagner, *Modelling the Duration of Patent Examination at the European Patent Office* 15–16 & tbl.1 (Centre for Econ. Pol'y Res., Working Paper No. 5283, 2005). The Harhoff/Wagner article, like the OECD study, tracks application results (patent grants) by application priority year and does not depend on estimates of prosecution lags. *Id.* at 11–12.

[99] *See generally* Bronwyn H. Hall & Dietmar Harhoff, *Post-Grant Reviews in the U.S. Patent System—Design Choices and Expected Impact*, 19 Berkeley Tech. L.J. 989 (2004).

[100] *See generally* Stuart J.H. Graham & Dietmar Harhoff, *Can Post-Grant Reviews Improve Patent System Design? A Twin Study of US and European Patents* (Apr. 2006) (Ctr. for Econ. Pol'y Research, Discussion Paper).

[101] Hall & Harhoff, *supra* note 99 at 997–99 & 998 fig.1.

[102] Graham & Harhoff, *supra* note 100, at 14 tbl.4. For the EPO applications equivalent to the litigated U.S. patents, the EPO grant rate was 80.3%, 15% had been withdrawn or refused, and 4.8% were still pending. *Id.* For the EPO applications corresponding to the non-litigated U.S. patents, the EPO grant rate was 67.9%, 27.4% had been withdrawn or refused, and 4.7% were still pending. *Id.* The differentials, i.e., 19.7% for the EPO litigated equivalents (100% minus 80.3%), and 32.1% for the EPO non-litigated EPO equivalents (100% minus 67.9%), are generally consistent with the "around 30 percentage points" differential found and reported in the OECD study. *Compare id.*, *with* OECD Study, *supra* note 65, at 18.

of obtaining a U.S. patent and a counterpart patent from the other major IP granting Offices."[103]

Grant rates in the OECD study were determined by sorting the patents by application priority year and then dividing the number of patents from each priority year by the number of applications filed in that priority year.[104] Thus, the OECD grant rate is more akin to the Patent Percentages reported in this Article (and the Allowance Percentages in our earlier studies) than it is to the Grant Rate of the Trilateral Website. The OECD grant rates, however, should be more precise estimates than our Patent Percentage and Allowance Percentage estimates because matching by priority year avoids the use of the estimated prosecution lag times as employed in our calculations (and in the "Likelihood" calculations of the PTO/Clarke paper).[105]

The Grant Rates we reported in our earlier studies follow the Trilateral Website definition, i.e., applications allowed in any particular year divided by total disposals, and thus are not directly comparable to the grant rates determined in the OECD study.[106]

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[103] *Compare* OECD Study, *supra* note 65, at 18, *with* Clarke, *supra* note 52, at 342.

[104] OECD Study, *supra* note 65, at 19 fig.7. In the OECD study, "EPO grant rates are defined as number of [EPO] applications with grant date divided by total number of [EPO] applications, sorted by year of priority." *Id.* Grant rates at the USPTO for U.S. priorities also applied at the EPO were estimated by:

> 1) [s]elect[ing] all EPO applications with at least one US priority in the EPO database;
> 2) [t]rack[ing] the corresponding patent number in the USPTO database on grants;
> 3) [d]ivid[ing] the number of US priorities in EPO applications with a grant date at USPTO by the total number of US priorities in EPO applications . . . , sorted by year of priority. [The p]riority year corresponds to the initial date of filing of a patent application worldwide, regardless of subsequent filings in other countries; it normally corresponds to the date of filing in the applicant's domestic patent office.

Id.

[105] *See infra* tbl.2; Clarke, *supra* note 52, at 340. Another source of potential error in our Patent Percentage and Allowance Percentage estimates is the effect of changes in the backlog of pending patent applications. If backlogs are increasing because application disposals are not keeping pace with application filings, the calculated Allowance Percentages and Patent Percentages are likely to be lower because of the increase in application filings relative to disposals. On the other hand, reducing the backlog of pending applications could result in application disposals outpacing application filings with the consequence that calculated Allowance Percentages and Grant Rates would be higher. Neither result is necessarily an indicator of changes in examination rigor.

[106] *See* Quillen & Webster, *supra* note 3, at 2–3, 20–21 tbls.6 & 7; Quillen et al., *supra* note 6, at 38, 49–50; OECD Study, *supra* note 65, at 18–19.

C. The Ebert Papers

The *JPTOS* published a paper by Dr. Lawrence B. Ebert in its July 2004 issue.[107] A similar paper by Dr. Ebert was published in the Fall 2004 issue of the *Chicago-Kent Journal of Intellectual Property*.[108] In his *JPTOS* paper, Dr. Ebert did no original work or calculations, but instead discussed and compared our studies to those of the PTO/Clarke paper.[109] He did not mention or discuss the OECD study, although it had been published earlier in 2004.

Dr. Ebert stated in his *JPTOS* paper that "the conclusions of Clarke are deemed more reasonable (grant rate of 75% is more accurate than a grant rate of 85%)," and concluded that "[t]he approximations of Clarke in inferring a US patent grant rate of about 75% are more accurate than the approximations of [Quillen and Webster] in inferring a US patent grant rate of about 85%."[110] In his *Chicago-Kent* paper, Dr. Ebert stated that "Clarke concluded that the grant rate at the USPTO was less than 75%."[111]

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[107] Lawrence B. Ebert, *How High Are the Grant Rates at the USPTO?*, 86 J. Pat. & Trademark Off. Soc'y 568 (2004).

[108] Lawrence B. Ebert, *Patent Grant Rates at the United States Patent and Trademark Office*, 4 Chi.-Kent J. Intell. Prop. 108 (2004).

[109] Ebert, *supra* note 107, at 569–70. Dr. Ebert, by way of criticism, observed that "[t]he fundamental data on patent applications and patent grants are inconsistent between the publications of [our second study] and Clarke" and characterized these differences as "discrepancies." *Id.* at 569–70. Apparently, Dr. Ebert was not aware that the data relied on for the PTO/Clarke paper were created especially for that paper and that the USPTO regularly revises its unpublished historical data. Our second study used the most current data then available. These data apparently were revised by the USPTO in connection with its creation of the data relied on in the later PTO/Clarke paper. The USPTO data have been revised again, perhaps several times, and this Article uses the revisions as of the December 22, 2005 date of the USPTO's response to our most recent FOIA request. For comparative purposes, the data set forth in the PTO/Clarke paper and the data which we currently possess, and calculations based on both, are set forth in Table 2 of this Article. *See infra* tbl.2.

[110] Ebert, *supra* note 107, at 569, 576. Dr. Ebert stated in his *JPTOS* paper that our second study "revised earlier findings" to "correct for inaccuracies" in the first study. *Id.* at 568, 570. There were no inaccuracies to correct for, and the earlier findings were not revised. Our first study determined upper and lower bounds and intermediate values for USPTO Allowance Percentages and Grant Rates, employing all of the plausible assumptions given the data available to us, with all assumptions specified. *See supra* note 12 and accompanying text. The Allison-Lemley data enabled us to determine additional intermediate values for Allowance Percentages and Grant Rates for the USPTO using an additional set of plausible assumptions that were enabled by the Allison-Lemley data. *See supra* notes 47–51, 59 and accompanying text.

[111] Ebert, *supra* note 108, at 114.

The PTO/Clarke paper, however, did not determine or infer a Grant Rate for the USPTO, nor did it claim to have done so. Rather, it determined what it termed "Issue Rates Relative to Disposals," which, as previously noted, were misleadingly compared to Grant Rates for the EPO and JPO as reported on the Trilateral Website.[112] Perhaps it was this misleading comparison that erroneously led Dr. Ebert to believe that the PTO/Clarke paper had determined Grant Rates for the USPTO.

Even if one ignores Dr. Ebert's mistake and accepts his conclusion that the 73.93% Issue Rate for the USPTO for 1996–2000 reported in the PTO/Clarke paper is an appropriate measure of USPTO performance for 1996–2000, the comparison of that Issue Rate with the Grant Rates reported for the EPO and JPO on the Trilateral Website still leads to the conclusion that examination rigor at the USPTO trails that of the EPO and JPO,[113] which was a fundamental finding of our studies.[114]

This conclusion leaves open the question of whether the lowered examination rigor at the USPTO is a manifestation of the lowered standards for patentability promulgated by the Federal Circuit, and, if so, whether it is desirable that standards for patentability applied by the USPTO are lower than those applied at the EPO and JPO. And, if not, the question then becomes what steps should be taken to increase examination rigor at the USPTO, including the possibility of abolishing all continuing applications, except for divisional applications filed pursuant to 35 U.S.C. § 121.[115]

D. The Jensen, Palangkaraya, and Webster Study

This issue of the *Federal Circuit Bar Journal* includes a study of comparative patent application outcomes for the Trilateral Patent Offices—the USPTO, EPO and JPO—by Paul Jensen, Alfons Palangkaraya, and Elizabeth Webster of the Melbourne Institute of Applied Economic and Social Research and

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[112] *See supra* notes 74–90 and accompanying text.

[113] The "Issue Rate" reported in the PTO/Clarke paper for the USPTO for 1996–2000 is 73.93%. Clarke, *supra* note 52, at 343. The averaged Grant Rates from the Trilateral Website for the EPO and JPO for those years are 64.5% and 63.8%, respectively. *See id.* The lower numbers for the EPO and JPO are indicative of greater examination rigor at the EPO and JPO than at the USPTO. For the EPO, the OECD study reported that "the difference between USPTO and EPO grant rates for patents with US priorities also applied at EPO was around 30 percentage points," also indicating greater examination rigor at the EPO. OECD Study, *supra* note 65, at 18.

[114] Quillen & Webster, *supra* note 3, at 13; Quillen et al., *supra* note 6, at 38.

[115] 35 U.S.C. § 121 (2000).

the Intellectual Property Research Institute of Australia at The University of Melbourne.[116]

The authors constructed a dataset of ~70,000 non-PCT, single, common priority patent applications for the priority years 1990–1995 for the USPTO, the EPO, and the JPO.[117] Their methodology was to identify all single priority U.S. patents (~70,000) granted by the USPTO on applications filed in those years with counterpart applications filed in both the EPO and JPO and then to determine the outcomes for the counterpart applications in the EPO and JPO.[118] In effect, they were looking at essentially the same application populations in all three patent offices in which patents were granted on 100% of the U.S. applications. The eight-year interval between the 1995 priority year and the final year included in their study (2004) should have been sufficient for prosecution to have been concluded for most of the EPO and JPO applications.[119]

They found that 72.5% of the EPO applications corresponding to the U.S. patents were granted, 22.3% were withdrawn or rejected (18.5% withdrawn, 3.8% rejected), and 5.1% remained pending or at least were not otherwise accounted for.[120] If all of the still-pending EPO applications are granted, the number of EPO grants will be 77.6% of the number of U.S. patents. If none of the still-pending EPO applications are granted, the number of EPO grants will be 72.5% of the number of U.S. patents.[121]

The study also found that 44.5% of the JPO applications corresponding to the U.S. patents were granted, 44.3% were withdrawn or rejected (29.7% withdrawn, 14.6% rejected), and 11.3% remained pending or were otherwise unaccounted for.[122] If all of the still-pending JPO applications are granted the number of JPO grants will be 55.8% of the number of U.S. patents. If none

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[116] Jensen et al., *supra* note 65, at 679–80.

[117] *Id.* at 681.

[118] *See id.*

[119] *Id.* at 687.

[120] *Id.* at 690 & tbl.3. Their finding that 5.1% of the EPO applications are still pending and that only 18.5% had been withdrawn are generally consistent with the findings of the Harhoff & Wagner article, which, although looking at a substantially different application population (all EPO applications filed between 1978 and 1995, rather than ~70,000 EPO applications filed between 1990 and 1995), found that 3.9% of the EPO applications filed between 1978 and 1995 were still pending and that 27.4% of such applications had been withdrawn. Harhoff & Wagner, *supra* note 98, at 15.

[121] The 72.5%–77.6% possible range of grant rates in the Jensen, Palangkaraya, and Webster study is consistent with the OECD study that found grant rates at the USPTO were about 30 percentage points higher than at the EPO for the same application population. *See* Jensen et al., *supra* note 65, at 690 tbl.3; OECD Study, *supra* note 65, at 18.

[122] Jensen et al., *supra* note 65, at 689 tbl.2.

of the still-pending JPO applications is granted the number of JPO grants will be 44.5% of the number of U.S. patents.

Thus, for the 1990–1995 priority years, the number of patents granted at the EPO will be 72.5%–77.6% of the number of U.S. patents once all of the EPO applications are accounted for.[123] At the JPO, the number will be from 44.5%–55.8% of the number of U.S. patents once all of the JPO applications are accounted for.[124]

These findings suggest that examination rigor at the EPO is higher than at the USPTO, and that examination rigor at the JPO is higher than at either the USPTO or the EPO. They also suggest, given the possibility that the respective patent offices may apply the patentability standards that prevail in their respective regions, that prevailing standards for patentability are lowest in the United States and highest in Japan.

These numbers, like those of the OECD study and the Harhoff/Wagner study, both previously discussed, are more like the Patent Percentages (and Allowance Percentages) we determined, and are not comparable to Grant Rates as defined on the Trilateral Website that we reported. However, like the OECD numbers and the Harhoff/Wagner numbers, they do not depend on estimates of prosecution lag times, nor would they be affected by backlog changes, and therefore are more precise estimates than our Patent Percentage and Allowance Percentage estimates.

III. The Updated Study

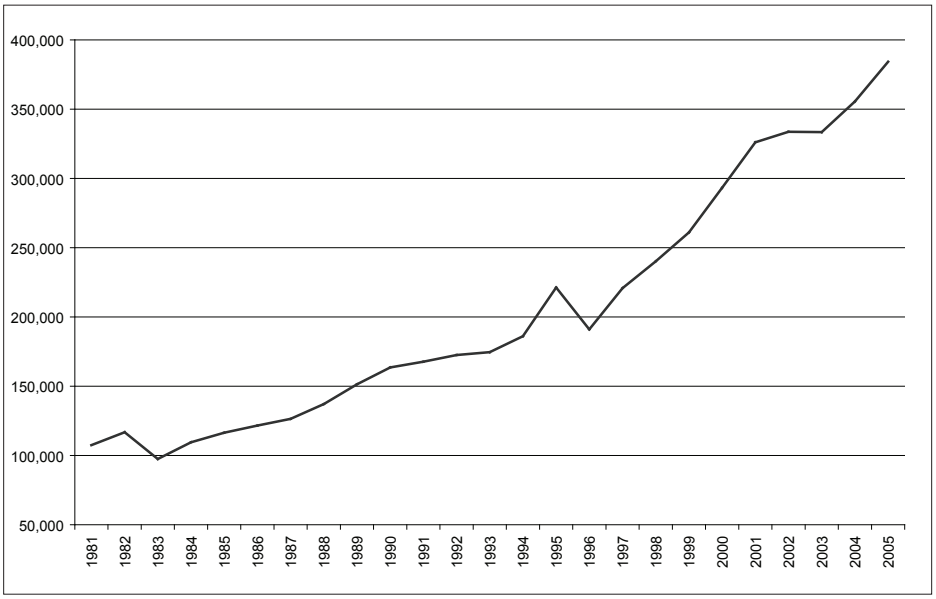
A. Introduction

The new USPTO FOIA Data for 1981–2005 and Annual Report Data for the same years are set forth in Table 1 of this Article. We found that the number of patent applications filed per year grew from 293,244 in 2000, the last year for which we had data for our second study, to 384,228 in 2005, a 31% increase. Application filings for 1981–2005 are shown in Figure 1. The growth in application filings that followed the advent of the Federal Circuit (which coincided with the commencement of the USPTO's 1983 fiscal year) is apparent.

[123] *See id.* at 690 tbl.3.

[124] *See id.* at 689 tbl.2. The conclusion of the PTO/Clarke paper that "an applicant for patent in the USPTO has a similar likelihood of obtaining a U.S. patent and a counterpart patent from the other major IP granting Offices" is grossly inconsistent with the findings of the Jensen, Palangkaraya, and Webster study. Clarke, *supra* note 52, at 342.

Figure 1. Applications Filed (1981–2005) (FOIA Data)



We also found that the growth in application allowances and patent issuances continued, although application allowances and patent issuances in 2004–2005 were lower than in 2003. As shown in Figure 2, allowances grew from 166,200 in 2000 (USPTO Annual Report data) to 188,283 in 2003 (a 13% increase) and declined to 164,093 in 2005. Patent issuances grew from 165,499 in 2000 (FOIA data) to 173,064 in 2003 (a 5% increase) and then declined to 152,087 in 2005. As in the case of application filings, the growth in application allowances and patent issuances following formation of the Federal Circuit is apparent.

Original Applications grew from 213,694 in 2000 to 264,569 in 2005, a 24% increase. Continuing applications outpaced original applications, growing from 79,550 in 2000 to 119,659 in 2005, a 50% increase. The growth in continuing applications, original applications, and total application filings subsequent to formation of the Federal Circuit is depicted in Figure 3.

The proportion of continuing applications continued to increase as well, from 27% of the total number of applications filed in 2000 to 31% in 2005. Continuing applications comprised only 16% of the applications filed in the USPTO's 1983 fiscal year, which commenced at the same time the Federal Circuit came into existence. The number of divisional applications, which has been flat at about 5–6% of the total number of applications filed except for the 1995 spike engendered by the onset of the 20-year-from-filing patent term, was 5% in 2000 and 5% in 2005. These applications are shown in Figure 4.

Figure 2. Applications Allowed/Patents Issued (1981–2005) (Applications–Annual Reports: Patents/FOIA Data)

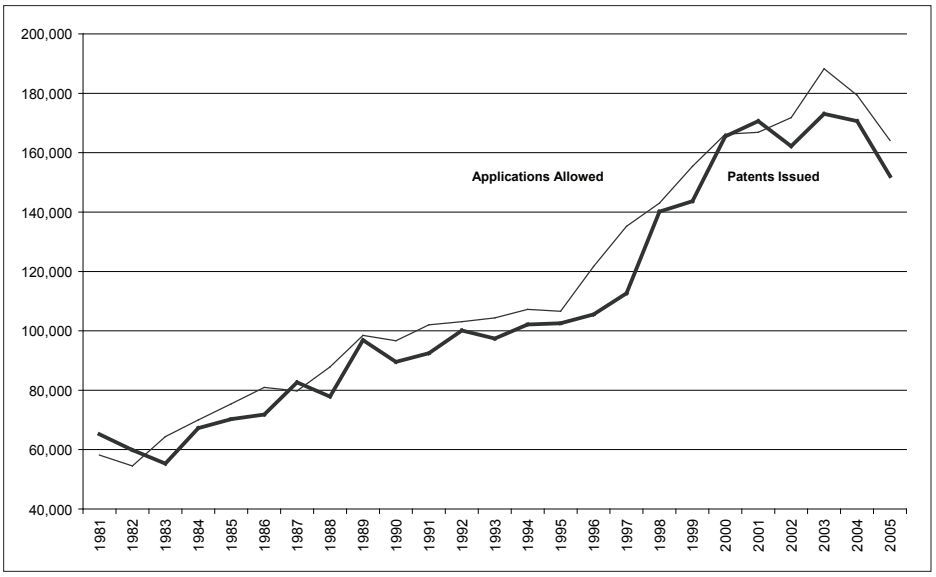
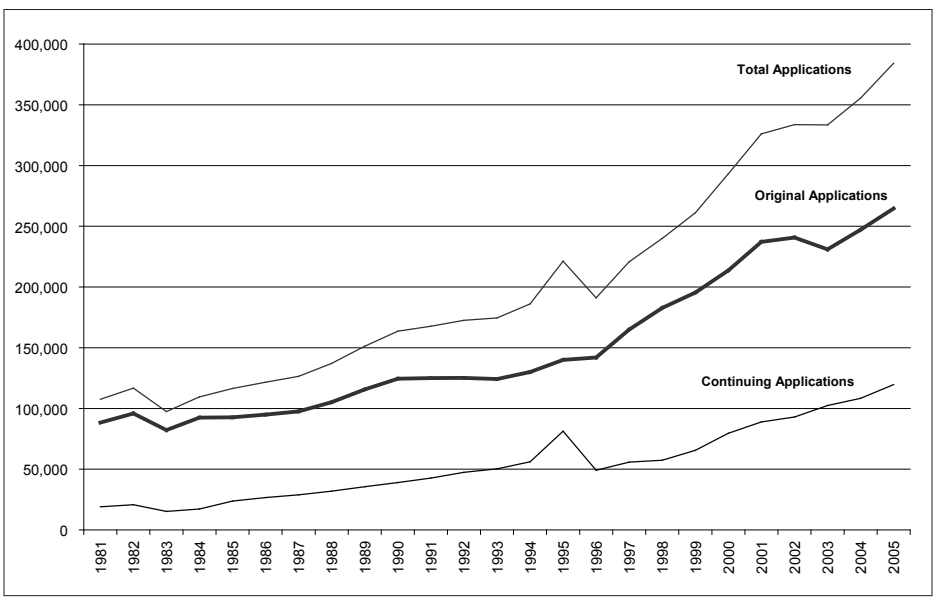


Figure 3. United States Patent Applications (1981–2005) (FOIA Data)



B. Patent Percentages

Estimated Patent Percentages for the USPTO, the EPO, and the JPO are in Table 3. Results are summarized in Table 5. Comparative Patent Percentages are depicted in Figure 5.

Figure 4. Continuing Applications as Percent of Total Applications (1981–2005) (FOIA Data)

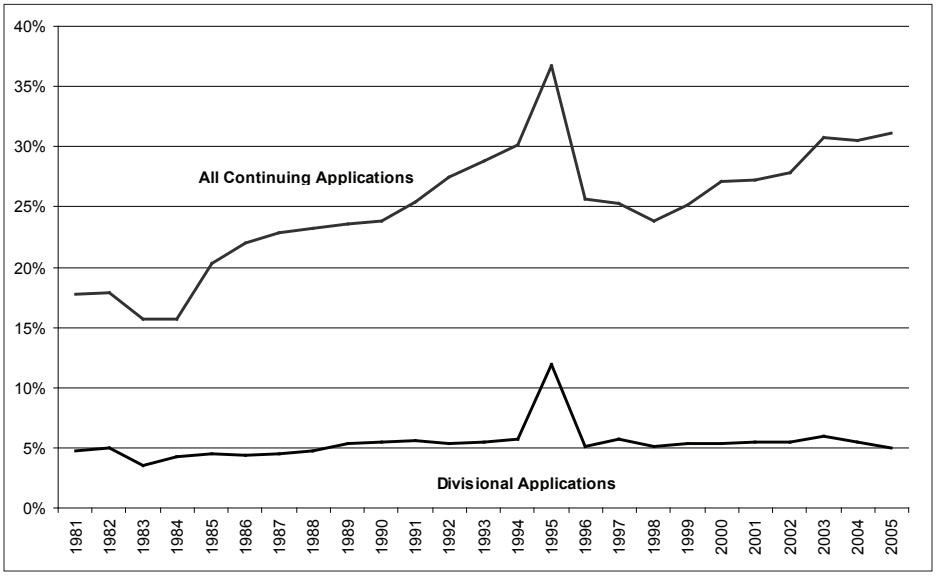
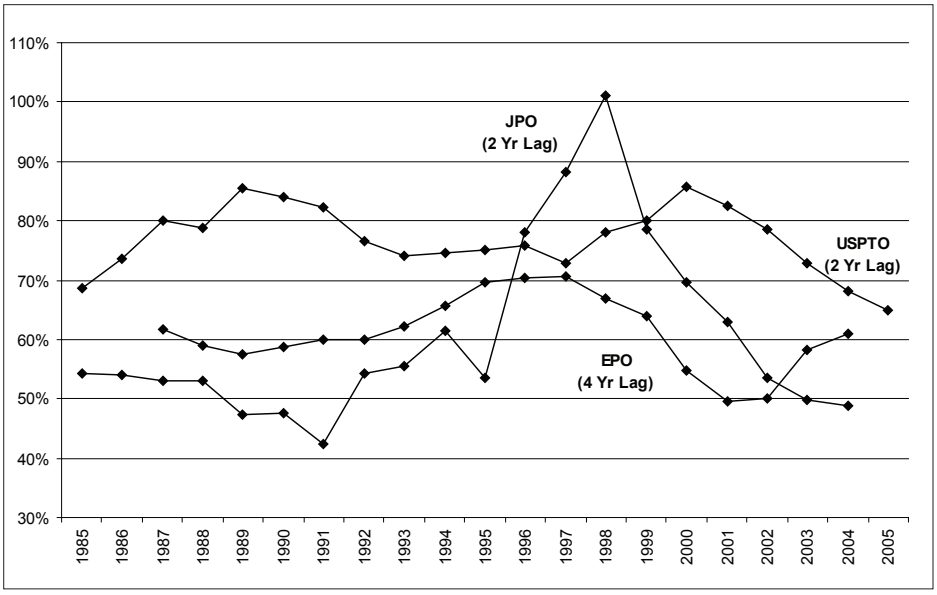


Figure 5. Patent Percentages (1985–2005) (Three–Year Composite)



For the USPTO, estimates of Patent Percentages were determined for the overall 1981–2005 data set with no prosecution lag, and with a two-year prosecution lag. Patent Percentages corrected for continuing applications for the overall 1981–2005 data set with no prosecution lag were 63%, 68%, and 73%, depending on the underlying correction assumption, and, with

the two-year assumed prosecution lag, were 70%, 75%, and 80%, again depending on the same underlying correction assumptions. Uncorrected Patent Percentages were 53% and 60%, respectively.

The correction assumptions, which are specified in Tables 3 and 5, employ the number of issued patents as the numerator and use as the denominator/divisor (1) the number or original applications, (2) the sum of the number of original and divisional applications, which treats divisional applications as if they were original applications, and (3) the number of original plus divisional plus continuation-in-part applications (CIPs), which treats both divisional applications and CIPs as if they were original applications. The result of using the number of original applications as the correction assumption divisor (number 1 above) can be regarded as an upper bound estimate for the corrected Patent Percentage and the result of using the number of original plus divisional plus CIPs (number 3 above) as the divisor can be regarded as a lower bound estimate for the USPTO for the corrected Patent Percentage.

The Patent Percentage estimate for the EPO for the overall 1981–2004 period (based on European and Euro-PCT Applications) was 45% with no prosecution lag and 61% with a four-year prosecution lag.[125] When based on European and Euro-PCT International Phase Applications, the EPO Patent Percentages were 35% and 49%, respectively. For the JPO, the estimated overall Patent Percentage with no prosecution lag was estimated to be 54%, and it was 60% with a two-year prosecution lag.[126]

Figure 5 (which is comparable to Figure 7 of our second study) is a year-by-year comparison of estimated Patent Percentages for the USPTO, the EPO, and the JPO. The estimated Patent Percentages for the USPTO and the JPO are calculated for a three-year composite with a two-year prosecution lag. The EPO Patent Percentages are for a three-year composite with a four-year prosecution lag and those depicted used the number of European and Euro-PCT applications as the divisor. Thus, 1985 is the first date for Patent Percentages for the USPTO and the JPO, and 1987 is the first date for the EPO. The USPTO Patent Percentages depicted employed as the divisor the number of original plus divisional applications, thus treating divisional applications as if they were original applications and implicitly assuming that refiled continuation and CIP applications, but not divisional applications, were renewed attempts to patent the subject matter of their parent

[125] *See supra* note 23.

[126] *See infra* tbl.6. Estimates of prosecution lags were determined using data from USPTO Annual Reports, data from the Trilateral Website, and data from the Harhoff & Wagner article. USPTO Annual Reports, *supra* note 4; Trilateral Statistical Report, *supra* note 2, at 38; Harhoff & Wagner, *supra* note 98, at 11–16, 15 tbl.1. The EPO prosecution lag, rounded to the nearest whole number, was four years. *See infra* tbl.6.

applications and that such parent applications were abandoned in favor of the continuations or CIPs.

Estimated EPO Patent Percentages are lower than estimated USPTO Patent Percentages throughout the entire period from 1987 to 2004 for which EPO Patent Percentages can be calculated.

The Patent Percentages at the JPO oscillated around about 50% until 1995, climbed rapidly after 1995, were nearly the same as USPTO Patent Percentages in 1996 and 1999, exceeded USPTO Patent Percentages in 1997–1998, and were lower than USPTO Patent Percentages in all other years. Over the 1985–2004 period, excluding 1996 and 1999, the JPO Patent Percentages were lower for 16 years and the USPTO Patent Percentage was lower for two years.

The conclusions to be drawn are that, over the portions of the 1981–2004 time period for which comparisons can be made, overall examination rigor as measured by Patent Percentages is lower for the USPTO than for either the EPO or the JPO.[127]

C. Grant Rates

Grant Rate is defined on the Trilateral Website as "the number of applications that were granted during the reporting period, divided by the number of disposals in the reporting period (applications granted plus those abandoned or refused)."[128] The USPTO, the EPO, and the JPO all report Grant Rates on the Trilateral Website.[129] As of this writing, Grant Rates from the Trilateral Website are available for 1995–2004.

Grant Rates reported for the USPTO on the Trilateral Website are not corrected for continuing applications.[130] However, using data provided by the USPTO in its most recent FOIA response, we are able to estimate Grant Rates for the USPTO corrected for continuing applications using various assumptions about the fates of the parent applications. In addition, the FOIA response provided data on the number of applications abandoned without

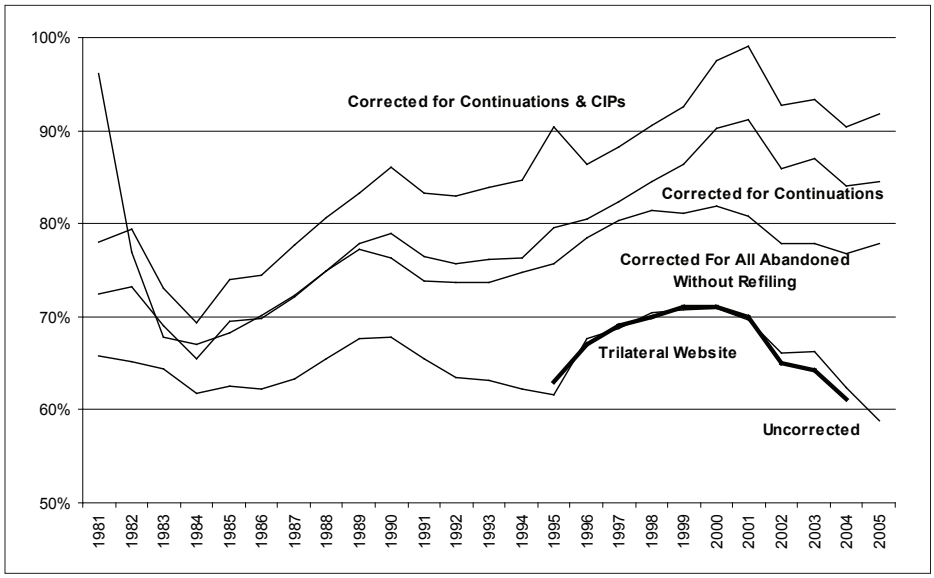
[127] *See supra* fig.5; *infra* tbl.5. Possible sources of error in these Patent Percentage estimates are the prosecution lag assumptions employed in the calculations, and the possibility of backlog changes affecting the results. The USPTO backlog of Patents Pending Prior to Allowance grew from 485,129 in 2000 to 885,002 in 2005, an 82% increase, which would tend to lower the calculated Patent Percentages for the USPTO and make its examination performance appear to be better than it really is. *See* 2005 USPTO Performance and Accountability Rep. 120 tbl.3.

[128] Trilateral Statistical Report, *supra* note 2, at 63.

[129] *Id.* at 38.

[130] *See id.* at 63.

Figure 6. USPTO Grant Rates (1981–2005)



refiling,[131] which enabled us to estimate a Grant Rate that provided a new lower bound estimate for Grant Rates for the USPTO.

The Grant Rate calculations are set forth in Table 4. The results are summarized in Table 5 and depicted in Figure 6. The overall uncorrected Grant Rate for the USPTO for 1981–2005, determined by dividing the number of allowed applications in 1981–2005 by the number of disposals in 1981–2005 is 66%.

When the number of Net Abandonments (the total number of abandonments from the USPTO Annual Reports less the appropriate number of continuing applications from the FOIA data) is corrected for continuation applications by subtracting the number of continuations (from the FOIA data) from the number of abandoned applications as reported in the USPTO Annual Reports, i.e., on the assumption that continuations are an attempt to patent the subject matter of their parent applications and their parent applications were abandoned in favor of the continuations, the overall Grant Rate for the USPTO for 1981–2005, determined by dividing the number of allowed applications by the net disposals is 80%. Implicit in the underlying assumption for this calculation is that *no* CIP or divisional application was an attempt to patent the subject matter of its parent and that *none* of their parent applications were abandoned in favor of the CIP or divisional. This calculation, in both of our earlier studies, provided the lower bound estimate for corrected Grant Rates based on the data then available to us. As previously

[131] Letter from Robert Fawcett to author, *supra* note 10.

noted, additional data, provided in the USPTO's current FOIA response, enables us to calculate a new lower bound estimate.

When the number of Net Abandonments is corrected for continuation and CIP applications, the overall Grant Rate for 1981–2005 is 87%. Implicit in the underlying assumption for this calculation is that no divisional application was an attempt to patent the subject matter of its parent, and that no parent application was abandoned in favor of a divisional application.

When the USPTO Grant Rate is determined on the assumption that all continuing applications are an attempt to patent the subject matter of their parents and that the parent applications were abandoned in favor of the continuing applications, the overall Grant Rate for 1981–2005 is 95%. This calculation establishes an upper bound for Grant Rate estimates. The assumption on which this calculation is based is not true in all instances, e.g., when a divisional or other continuing application is filed and its parent is not abandoned. The result is that, in some instances, this calculation produces a Grant Rate estimate that is above 100%. Such a result is not realistic and results from the fact that not all parent applications are abandoned in favor of continuing applications that claim benefit of the filing dates of such parent applications, e.g., divisional applications in which the parent applications are not abandoned.

The FOIA data included USPTO data for the number of applications that were abandoned without refiling for 1981–2005.[132] This was not available to us at the time of our first or second studies, and the existence and possible availability of this type of data was not disclosed until the April 2003 publication of the PTO/Clarke paper, which included it for 1996–2000.[133] As noted above, the PTO/Clarke paper did not use these data to calculate Grant Rates.

Grant Rates employing these data are calculated by dividing the number of applications allowed in 1981–2005 by the total number of disposals in 1981–2005. The overall estimated Grant Rate for the 1981–2005 period using these data is 77% and represents the new lower bound estimate for corrected Grant Rates.

Thus, for the 1981–2005 time period, the lower bound estimate for USPTO Grant Rates corrected for refiled continuing applications is 77%, and the upper bound estimate is 95%. Intermediate values for such Grant Rate estimates are 80% and 87%, depending on the underlying assumption as specified. These data are summarized in Table 5. The calculations are set forth in Table 3.

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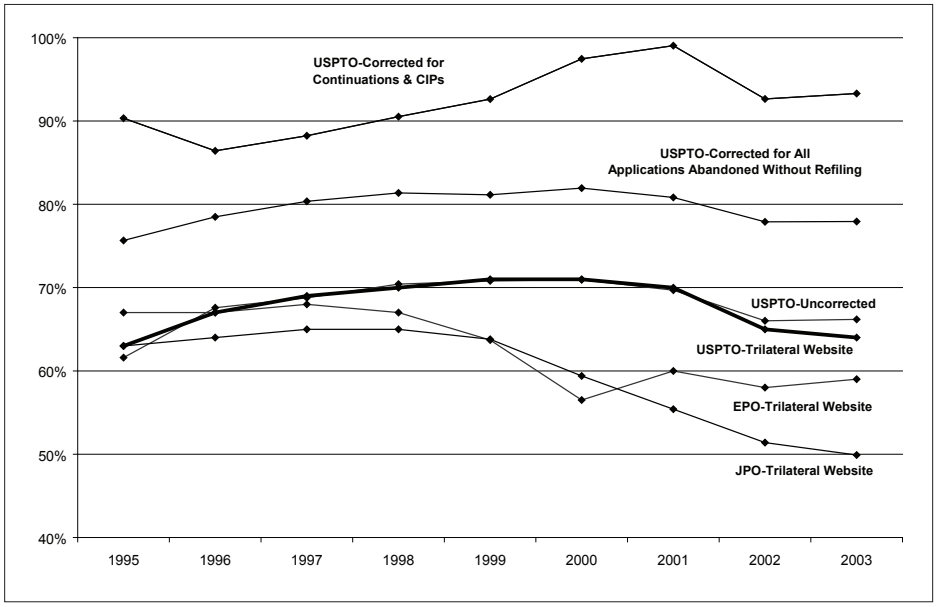
[132] *Id.*

[133] *See* Clarke, *supra* note 52, at 343.

Figure 7. Comparative Grant Rates (1995–2003)



Grant Rates for the USPTO were also calculated for 1995–2004 and compared to those reported on the Trilateral Website for the USPTO, the EPO, and the JPO.[134] This comparison is shown in Figure 7 and in Table 5. The Estimated Grant Rates depicted for the USPTO in Figure 7 are the uncorrected Grant Rate, the USPTO Grant Rate reported on the Trilateral Website, the USPTO Grant Rate corrected for all applications abandoned without refiling (which is the new lower bound Grant Rate estimate for the USPTO), and the Grant Rate corrected for continuation and CIP applications (which is an intermediate estimate that implicitly assumes that the parents of the continuations and CIPs, but not divisionals, were abandoned in favor of the refiled continuing applications).

It is obvious from an inspection of Figure 7 that the Grant Rates reported on the Trilateral Website for the USPTO (the bold line) are virtually identical to the uncorrected USPTO Grant Rates. It is also equally obvious that the new lower bound estimate for USPTO Grant Rates, corrected for all applications abandoned without refiling, is substantially higher than the corresponding Grant Rates reported for the EPO and the JPO. USPTO

[134] The calculated Grant Rate for the USPTO for 1995–2004 on the assumption that the parent applications of all continuing applications were abandoned in favor of the continuing applications is 103%. *See infra* tbls.4 & 5. The impossibility of Grant Rates in excess of 100% and the reasons therefor were previously discussed in this Article and in our second study. *See* discussion *supra* Part III.C.; Quillen et al., *supra* note 6, at 47.

Grant Rates corrected for continuation and CIP applications are higher still. Overall, for the 1995–2004 period, the USPTO Grant Rate corrected for all applications abandoned without refiling is about 20% higher than the JPO Grant Rate (79% minus 59%) and about 17% higher than the EPO Grant Rate (79% minus 62%).[135]

Conclusion

In this updated study, using USPTO FOIA data for 1981–2005 in conjunction with USPTO Annual Report data for the same years, we essentially confirm the findings of our earlier studies, namely Patent Percentages and Grant Rates for the USPTO are generally above those determined for the EPO and JPO. These findings are consistent with studies by the OECD (for Europe) and by Jensen, Palangkaraya, and Webster (for Europe and Japan).

We also confirm the finding of our second study that examination rigor at the USPTO, whether measured by Patent Percentage or Grant Rate (or by Allowance Percentage) declined following formation of the Federal Circuit in 1982 (i.e., at the commencement of the USPTO's 1983 fiscal year).

Not answered by this study, or by our earlier studies, is the extent to which the observed decline in examination rigor at the USPTO following the advent of the Federal Circuit is a consequence of the lowered standards for patentability promulgated by the Federal Circuit.[136] Also not answered by our studies is the extent to which the differences in Patent Percentages and Grant Rates between the USPTO, the EPO, and the JPO reflect performance differences between these patent offices or the extent to which they reflect fundamental differences in the standards for patentability between the United States, Europe, and Japan.

The policy questions posed by our earlier studies are still valid, but are complicated by possibility that the observed differences in examination rigor between the three patent offices are a reflection of fundamental differences

[135] *See infra* tbls.4 & 5.

[136] According to the August 2005 Report of the National Academy of Public Administration, the USPTO determines patent quality by whether allowed claims meet statutory criteria. Nat'l Acad. Of Pub. Admin., US Patent and Trademark Office: Transforming to Meet the Challenges of the 21st Century 62 (2005), *available at* http://www.napawash.org/publications.html. Error rates for 1999–2004 range from a low of 4.2% (2002) to a high of 6.6% (2000). *Id.* at 64 tbl.3-1. The same table reports allowance rates for those years ranging from a low of 61.3% (2004) to a high of 70.9% (2000). *Id.* These allowance rates appear to be the same as the grant rates for the USPTO reported on the Trilateral Website, which are not corrected for refiled continuing applications. *See* Trilateral Statistical Report, *supra* note 2, at 38.

in the standards for patentability between the three regions, and not just performance differences between the three patent offices.

As to the United States, the first question is whether it is desirable that the standards for patentability applied at the USPTO are lower than those applied at the EPO and the JPO, and if not, what changes must be made to increase the standards applied by the USPTO. Given that the USPTO apparently believes it is doing a credible job following the statutory criteria,[137] presumably as interpreted by the Federal Circuit, the answer to this question may well involve changes at the Federal Circuit rather than at the USPTO.

A related question is whether it is desirable to perpetuate the system of refiled continuing applications, which is unique to the USPTO. Refiled continuing applications enable patent applicants to avoid final decisions of the patentability of their applications and place the USPTO in the position of being able to rid itself of determined applicants only by allowing their refiled continuing applications.[138]

In addition, refiled continuing applications represent rework imposed on the USPTO and divert USPTO examination resources that could otherwise be applied to the examination of original applications.[139] If we are satisfied with a system in which the number of applications allowed and patents granted is nearly equal to the number of original applications, then why shouldn't we move to a registration system and eliminate the cost and expense of our current examination system? Finally, if we are satisfied with our current system with its lowered examination standard, shouldn't we adopt a less rigorous standard than "clear and convincing" evidence for overcoming the statutory presumption of validity?

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[137] *See supra* note 136 and accompanying text.

[138] Refiled continuing applications also make possible numerous abuses that are beyond the scope of this study. *See, e.g.*, Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. Rev. 63, 69–71 (2004); Debra Koker, Note, *Patent Continuations: A Threat to the System*, B.U. J. Sci. & Tech. L. (forthcoming 2006).

[139] *See* Changes to Practice For Continuing Applications, Requests for Continued Examination Practice, and Applications Containing Patentably Indistinct Claims, 71 Fed. Reg. 48, 48 (Jan. 3, 2006) (to be codified at 37 C.F.R. pt. 1). The USPTO has recognized that refiled continuing applications represent rework for it and has proposed administrative rules to limit the number of refilings. *See id.* at 48–61.

Tables begin overleaf.

Table 1: United States Patent and Trademark Office Data and Calculations

USPTO ANNUAL REPORT DATA	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
UPR Applications Filed	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,571	167,715
UPR Applications Allowed	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014
UPR Applications Abandoned	30,358	29,099	35,555	43,313	45,083	49,151	46,190	46,351	47,218	45,750	53,703
UPR Application Disposals (Allowed + Abandoned)	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717
UPR Patents Issued	67,128	59,853	55,314	67,214	70,244	71,791	82,635	77,844	96,868	89,551	92,474
Patents Pending Prior to Allowance (Total Applications)	181,727	216,509	223,101	219,567	215,521	207,774	209,911	215,280	222,755	244,964	254,507

USPTO FOIA DATA (12/22/2005)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
UPR Application Filings	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,561	167,715
Continuation Application Filings											
Continuations	8,192	9,097	6,764	6,509	11,882	14,036	15,466	16,923	19,184	19,962	22,346
Continued Prosecution Applications (CPAs)											
Requests for Continued Examination (RCEs)											
Rule 129 Continuations (R129s)											
Total Continuation Applications (Calculated)	8,192	9,097	6,764	6,509	11,882	14,036	15,466	16,923	19,184	19,962	22,346
Divisional Application Filings											
Divisionals	5,158	5,839	3,455	4,726	5,174	5,301	5,647	6,546	8,156	8,853	9,382
Divisional Continued Prosecution Applications (DCPAs)											
Total Divisional Applications Calculated	5,158	5,839	3,455	4,726	5,174	5,301	5,647	6,546	8,156	8,853	9,382
Continuation-in-Part Applications (CIPs)	5,743	5,871	5,023	5,903	6,648	7,383	7,745	8,432	8,282	10,222	10,980
Total Continuing Application Filings (Calculated)	19,093	20,807	15,242	17,138	23,704	26,720	28,858	31,901	35,622	39,037	42,708

Application Abandonments Not Refiled	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Original Applications Abandoned Without Refiling	2,139	14,256	26,447	30,345	31,127	30,196	26,205	25,196	24,559	25,488	30,637
Continuing Applications Abandoned Without Refiling	241	2,142	4,168	4,016	3,909	4,176	4,309	4,303	4,482	4,518	5,485
Total Applications Abandoned Without Refiling	2,380	16,398	30,615	34,361	35,036	34,372	30,514	29,499	29,041	30,006	36,122

Patents	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
UPR Patent Count (Total Issued)	65,191	59,855	55,314	67,218	70,255	71,793	82,639	77,846	96,871	89,561	92,473
Patents Wherein Parent Patent Was Granted	3,244	4,750	4,586	5,561	5,350	5,359	6,194	6,446	8,399	9,157	9,980
"Original" UPR Patents	61,947	55,105	50,728	61,657	64,905	66,434	76,445	71,400	88,472	80,404	82,493

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
172,539	174,553	186,123	221,304	191,116	220,773	240,090	261,041	293,244	326,081	333,688	333,452	355,527	380,955	5,105,848
103,093	104,351	107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340
59,199	60,763	64,932	66,460	58,358	61,367	60,102	64,062	68,056	72,566	88,417	96,176	107,824	115,232	1,515,285
162,292	165,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
100,116	97,386	102,130	102,579	105,529	112,646	140,159	143,686	165,504	170,643	162,221	173,072	170,637	152,090	2,729,314
269,596	244,646	261,249	298,522	303,720	275,295	379,484	414,837	485,129	542,007	636,530	674,691	756,604	885,002	

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
172,539	174,553	186,123	221,304	191,016	220,773	240,090	261,013	293,244	326,081	333,688	333,452	355,527	384,228	5,108,983
26,086	28,067	31,750	37,563	23,735	28,673	14,016	13,239	17,613	21,436	25,601	26,135	27,989	30,754	503,018
						17,461	25,258	30,888	22,406	8,978	2,333			107,324
								1,033	12,438	25,677	39,562	45,945	54,332	178,987
			1,612	5,016	3,737	2,356	949	444	206	118	87	40	8	14,573
26,086	28,067	31,750	39,175	28,751	32,410	33,833	39,446	49,978	56,486	60,374	68,117	73,974	85,094	803,902
9,320	9,533	10,570	26,272	9,833	12,537	11,837	13,536	15,548	17,799	18,071	19,688	19,413	19,131	281,325
						396	314	260	140	171	36			1,317
9,320	9,533	10,570	26,272	9,833	12,537	12,233	13,850	15,808	17,939	18,242	19,724	19,413	19,131	282,642
11,968	12,690	13,753	15,881	10,500	10,914	11,288	12,257	13,764	14,472	14,421	14,566	14,962	15,434	269,102
47,374	50,290	56,073	81,328	49,084	55,861	57,354	65,553	79,550	88,897	93,037	102,407	108,349	119,659	1,355,646

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
30,797	31,008	29,579	27,606	27,051	27,054	27,157	30,000	31,520	33,704	42,061	45,834	46,007	39,322	735,295
6,086	6,397	6,473	6,660	6,285	5,987	5,581	6,097	5,109	5,900	6,669	7,481	8,022	7,333	131,829
36,883	37,405	36,052	34,266	33,336	33,041	32,738	36,097	36,629	39,604	48,730	53,315	54,029	46,655	867,124

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
100,117	97,391	102,129	102,578	105,529	112,641	140,156	143,682	165,499	170,636	162,215	173,064	170,637	152,087	2,727,377
11,644	11,548	12,451	13,139	15,582	18,677	20,446	21,172	24,955	26,964	27,602	29,168	27,762	25,688	355,824
88,473	85,843	89,678	89,439	89,947	93,964	119,710	122,510	140,544	143,672	134,613	143,896	142,875	126,399	2,371,553

Table 1: United States Patent and Trademark Office Data and Calculations *(Continued)*

CALCULATIONS

Applications	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**
Original Applications (calculated from FOIA Data)	88,420	95,924	82,206	92,401	92,723	94,891	97,549	105,168	115,709	124,524	125,007
Original Applications + Divisionals	93,578	101,763	85,661	97,127	97,897	100,192	103,196	111,714	123,865	133,377	134,389
Original Applications + Divisions + CIPs	99,321	107,634	90,684	103,030	104,545	107,575	110,941	120,146	132,147	143,599	145,369
Continuing Applications as % of Total UPR Applications	18%	18%	16%	16%	20%	22%	23%	23%	24%	24%	25%
Divisional Applications as % of Total UPR Applications	5%	5%	4%	4%	4%	4%	4%	5%	5%	5%	6%

UPR Application Disposals	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**
Uncorrected (Abandoned + Allowed)	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717
Corrected for Continuation Applications	80,353	74,486	93,167	106,791	108,606	116,036	110,479	117,298	126,506	122,460	133,371
Corrected for Continuation and CIP Applications	74,610	68,615	88,144	100,888	101,958	108,653	102,734	108,866	118,224	112,238	122,391
Corrected for All Continuing Applications	69,452	62,776	84,689	96,162	96,784	103,352	97,087	102,320	110,068	103,385	113,009
Corrected for Applications Abandoned Without Refiling	60,567	70,882	94,991	104,348	110,441	115,293	110,269	117,369	127,513	126,678	138,136

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
125,165	124,263	130,050	139,976	141,932	164,912	182,736	195,460	213,694	237,184	240,651	231,045	247,178	264,569	3,753,337
134,485	133,796	140,620	166,248	151,765	177,449	194,969	209,310	229,502	255,123	258,893	250,769	266,591	283,700	4,035,979
146,453	146,486	154,373	182,129	162,265	188,363	206,257	221,567	243,266	269,595	273,314	265,335	281,553	299,134	4,305,081
27%	29%	30%	37%	26%	25%	24%	25%	27%	27%	28%	31%	30%	31%	27%
5%	5%	6%	12%	5%	6%	5%	5%	5%	6%	5%	6%	5%	5%	6%

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
162,292	165,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
136,206	137,047	140,403	133,851	151,301	164,197	169,314	179,996	184,278	182,948	199,857	216,342	213,199	194,231	3,592,723
124,238	124,357	126,650	117,970	140,801	153,283	158,026	167,739	170,514	168,476	185,436	201,776	198,237	178,797	3,323,621
114,918	114,824	116,080	91,698	130,968	140,746	145,793	153,889	154,706	150,537	167,194	182,052	178,824	159,666	3,040,979
139,976	141,756	143,273	140,832	155,030	168,281	175,783	191,477	202,829	206,472	220,544	241,598	233,378	210,748	3,748,464

Table 2: Comparison of PTO/Clarke Data & Results To 2005 FOIA Data & Results

DATA COMPARISON—UPR APPLICATIONS and "ORIGINAL" UPR PATENTS

ORGINAL UPR APPLICATIONS (PTO/Clarke Paper, Page 339)

Total UPR Application Filings	1994	1995	1996	1997	1998	1999	2000	Total
PTO/Clarke Data	185,900	220,953	190,638	218,881	236,173			1,052,545
FOIA Data (12/22/2005)	186,123	221,304	191,016	220,773	240,090			1,059,306
UPR Application Filings With Benefit Claimed to Prior Application								
PTO/Clarke Data	56,549	81,775	49,269	55,585	54,790			297,968
FOIA Data (12/22/2005)	56,073	81,328	49,084	55,861	57,354			299,700
Original UPR Application Filings (Total Filings Less Filings With Benefit Claims)								
PTO/Clarke Data	129,351	139,178	141,369	163,296	181,383			754,577
FOIA Data (12/22/2005)	130,050	139,976	141,932	164,912	182,736			759,606

"ORIGINAL" UPR PATENTS (PTO/Clarke Paper, Pages 339, 343)

Total UPR Patents	1994	1995	1996	1997	1998	1999	2000	Total
PTO/Clarke Data			105,529	112,646	140,159	143,686	165,504	667,524
FOIA Data (12/22/2005)			105,529	112,641	140,156	143,682	165,499	667,507
UPR Patents Claiming Benefit to a Patented Application								
PTO/Clarke Data			15,948	19,075	21,082	21,798	25,474	103,377
FOIA Data (12/22/2005)			15,582	18,677	20,446	21,172	24,955	100,832
"Original" UPR Patents								
PTO/Clarke Data			89,581	93,571	119,077	121,888	140,030	564,147
FOIA Data (12/22/2005)			89,947	93,964	119,710	122,510	140,544	566,675

USPTO "LIKELIHOODS" (PTO/Clarke Paper, Page 340)

"Likelihood" of U.S. Patent Grant Based on "Original" UPR Patents Only (Per PTO Paper)	Overall
PTO/Clarke Data	75%
FOIA Data (12/22/2005)	75%
"Likelihood" of U.S. Patent Grant Based on All UPR Patents	**Overall**
PTO/Clarke Data	88%
FOIA Data (12/22/2005)	88%

USPTO ALLOWANCE PERCENTAGES (1994-2000)

Applications Allowed 1996-2000 / Original Applications 1994-1998						Total
Applications Allowed - Per Annual Reports	121,694	135,240	143,045	155,380	166,200	721,559
PTO/Clarke Data						96%
FOIA Data (12/22/2005)						95%

USPTO "ISSUE" RATES (PTO/Clarke Paper, Page 343)

	1996	1997	1998	1999	2000	Total
Disposals (Application Abandonments) in First Prosecution (and not refiled)						
PTO/Clarke Data	30,114	30,829	29,591	32,890	33,732	157,156
FOIA Data (12/22/2005)	27,051	27,054	27,157	30,000	31,520	142,782
Disposals (Application Abandonments) in Continuing Applications or RCE/R.129 With Nonpatented Parents (and not refiled)						
PTO/Clarke Data	17,603	6,953	5,611	5,472	6,189	41,828
FOIA Data (12/22/2005)	6,285	5,987	5,581	6,097	5,109	29,059
Total Final Disposals (Application Abandonments) Without Refiling						
PTO/Clarke Data	47,717	37,782	35,202	38,362	39,921	198,984
FOIA Data (12/22/2005)	33,336	33,041	32,738	36,097	36,629	171,841

"ISSUE RATES"	1996	1997	1998	1999	2000	Overall
"Issue Rates" Relative to Disposals - "Original" UPR Patents Only (PTO/Clarke Paper)						
PTO/Clarke Data	65%	71%	77%	76%	78%	74%
FOIA Data (12/22/2005)	73%	74%	79%	77%	79%	77%
"Issue Rates" Relative to Disposals - All UPR Patents						
PTO/Clarke Data	69%	75%	80%	79%	81%	77%
FOIA Data (12/22/2005)	76%	77%	81%	80%	82%	80%

USPTO GRANT RATES (1996-2000)

Applications Allowed / (Applications Allowed +Total Abandoned Without Refiling)						
Applications Allowed - Per Annual Reports	121,694	135,240	143,045	155,380	166,200	721,559
PTO/Clarke Data	72%	78%	80%	80%	81%	78%
FOIA Data (12/22/2005)	78%	80%	81%	81%	82%	81%

Table 3: Patent and Allowance Percentages (1981-2005)

U. S. PATENT & TRADEMARK OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
UPR Applications Allowed (Annual Reports)	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014	103,093	104,351
UPR Patents Issued (FOIA Data)	65,191	59,855	55,314	67,218	70,255	71,793	82,639	77,846	96,871	89,561	92,473	100,117	97,391
Total UPR Applications (FOIA Data)	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,561	167,715	172,539	174,553
Original Applications (Calculated - FOIA Data)	88,420	95,924	82,206	92,401	92,723	94,891	97,549	105,168	115,709	124,524	125,007	125,165	124,263
Original Applications + Divisionals (Calculated)	93,578	101,763	85,661	97,127	97,897	100,192	103,196	111,714	123,865	133,377	134,389	134,485	133,796
Original Applications + Divisions + CIPs (Calculated)	99,321	107,634	90,684	103,030	104,545	107,575	110,941	120,146	132,147	143,599	145,369	146,453	146,486
Patent Percentage - Original Applications + Divisions (3 Yr Composite - 2 Yr Lag)					69%	74%	80%	79%	85%	84%	82%	76%	74%
Allowance Percentage - Original Applications (3 Yr Composite - 2 Yr Lag)					79%	84%	88%	89%	93%	95%	93%	87%	85%
Allowance Percentage - Origina Applications + Divisions (3 Yr Composite - 2 Yr Lag)					75%	80%	84%	84%	88%	90%	88%	82%	79%

EUROPEAN PATENT OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Patents Granted	3,346	5,428	9,656	13,311	15,117	18,472	17,143	19,750	22,558	24,756	26,642	30,409	36,664
Total European and Euro-PCT Applications	24,123	27,419	30,663	35,982	36,914	41,341	45,071	49,777	55,782	60,785	56,036	58,934	56,975
Total European and Euro-PCT (Int'l Phase) Applications	25,487	28,955	32,145	37,507	39,988	44,096	48,343	55,894	62,597	70,955	67,584	70,345	70,791
Patent Percentage - European and Euro-PCT Applications (3 Yr Composite - 4 Yr Lag)							62%	59%	57%	59%	60%	60%	62%
Patent Percentage - European and Euro-PCT (Int'l Phase) Applications (3 Yr Composite - 4 Yr Lag)							59%	56%	54%	55%	56%	55%	56%

JAPANESE PATENT OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Patents Granted (Registrations)	50,904	50,601	54,701	61,800	50,100	89,900	62,400	55,300	63,301	59,401	36,100	92,100	88,400
Requests for Examination	100,222	98,922	108,212	166,088	107,967	117,760	157,028	100,111	116,625	128,172	146,008	152,853	223,546
Applications Filed	218,261	237,513	254,956	284,767	302,995	320,089	341,095	339,399	351,207	367,590	369,396	371,894	366,486
Patent Percentage (3 Yr Composite - 2 Yr Lag)					54%	54%	53%	53%	47%	47%	42%	54%	55%

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage	
107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340	(1981-2005)	
102,129	102,578	105,529	112,641	140,156	143,682	165,499	170,636	162,215	173,064	170,637	152,087	2,727,377	No Lag	2 Yr Lag
186,123	221,304	191,016	220,773	240,090	261,013	293,244	326,081	333,688	333,452	355,527	384,228	5,108,983	53%	60%
130,050	139,976	141,932	164,912	182,736	195,460	213,694	237,184	240,651	231,045	247,178	264,569	3,753,337	73%	80%
140,620	166,248	151,765	177,449	194,969	209,310	229,502	255,123	258,893	250,769	266,591	283,700	4,035,979	68%	75%
154,373	182,129	162,265	188,363	206,257	221,567	243,266	269,595	273,314	265,335	281,553	299,134	4,305,081	63%	70%
74%	75%	76%	73%	78%	80%	86%	82%	79%	73%	68%	65%		Overall Allowance Percentage (1981-2005)	
													No Lag	2 Yr Lag
84%	85%	88%	92%	97%	97%	95%	90%	85%	82%	78%	75%		77%	89%
78%	79%	82%	82%	87%	88%	89%	84%	80%	76%	73%	70%		71%	79%

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage	
42,000	41,607	40,069	39,646	36,717	35,357	27,522	34,702	47,381	59,989	58,730		706,972	(1981-2004)	
57,845	60,063	63,895	72,837	82,259	89,326	100,699	110,112	106,325	116,791	123,706		1,563,660	No Lag	4 Yr Lag
74,250	79,261	87,405	100,392	113,342	123,878	145,241	162,022	161,075	167,353	178,579		2,047,485		
66%	70%	70%	71%	67%	64%	55%	50%	50%	58%	61%			45%	61%
58%	60%	59%	58%	54%	50%	41%	37%	36%	42%	43%			35%	49%

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage	
82,400	109,100	215,100	147,686	141,448	150,059	125,880	121,742	120,018	122,511	124,192		2,275,144	(1981-2004)	
144,051	167,923	186,415	205,300	208,392	217,389	261,690	253,826	237,435	243,836	328,105		4,177,876	No Lag	2 Yr Lag
353,301	369,215	376,615	391,572	401,932	405,655	436,865	439,175	421,044	413,092	423,081		8,557,195		
62%	54%	78%	88%	101%	78%	70%	63%	53%	50%	49%			54%	60%

Table 4: Grant Rates (1981-2004)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
Applications Allowed (Annual Reports)	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014	103,093	1
Applications Abandoned (Annual Reports)	30,358	29,099	35,555	43,313	45,083	49,151	46,190	46,351	47,218	45,750	53,703	59,199	
Application Disposals (Allowed + Abandoned)													
Uncorrected	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717	162,292	1
Corrected for Continuation Applications	80,353	74,486	93,167	106,791	108,606	116,036	110,479	117,298	126,506	122,460	133,371	136,206	1
Corrected for Continuation and CIP Applications	74,610	68,615	88,144	100,888	101,958	108,653	102,734	108,866	118,224	112,238	122,391	124,238	1
Corrected for All Continuing Applications	69,452	62,776	84,689	96,162	96,784	103,352	97,087	102,320	110,068	103,385	113,009	114,918	1
Corrected for All Applications Abandoned Without Refiling	60,567	70,882	94,991	104,348	110,441	115,293	110,269	117,369	127,513	126,678	138,136	139,976	1

USPTO Grant Rates	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**
Uncorrected	66%	65%	64%	62%	63%	62%	63%	65%	68%	68%	66%	64%
Corrected for Continuation Applications	72%	73%	69%	66%	69%	70%	72%	75%	78%	79%	76%	76%
Corrected for Continuation and CIP Applications	78%	79%	73%	69%	74%	74%	78%	81%	83%	86%	83%	83%
Corrected for All Continuing Applications	84%	87%	76%	73%	78%	78%	82%	86%	89%	94%	90%	90%
Corrected for All Applications Abandoned Without Refiling	96%	77%	68%	67%	68%	70%	72%	75%	77%	76%	74%	74%

TRILATERAL WEBSITE (1995-2004)
USPTO
EPO
JPO

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
04,351	107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340
60,763	64,932	66,460	58,358	61,367	60,102	64,062	68,056	72,566	88,417	96,176	107,824	115,232	1,515,285
65,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
37,047	140,403	133,851	151,301	164,197	169,314	179,996	184,278	182,948	199,857	216,342	213,199	194,231	3,592,723
24,357	126,650	117,970	140,801	153,283	158,026	167,739	170,514	168,476	185,436	201,776	198,237	178,797	3,323,621
14,824	116,080	91,698	130,968	140,746	145,793	153,889	154,706	150,537	167,194	182,052	178,824	159,666	3,040,979
41,756	143,273	140,832	155,030	168,281	175,783	191,477	202,829	206,472	220,544	241,598	233,378	210,748	3,748,464

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	1981-2005	1995-2004
63%	62%	62%	68%	69%	70%	71%	71%	70%	66%	66%	62%	59%	66%	67%
76%	76%	80%	80%	82%	84%	86%	90%	91%	86%	87%	84%	84%	80%	85%
84%	85%	90%	86%	88%	91%	93%	97%	99%	93%	93%	90%	92%	87%	92%
91%	92%	116%	93%	96%	98%	101%	107%	111%	103%	103%	100%	103%	95%	103%
74%	75%	76%	78%	80%	81%	81%	82%	81%	78%	78%	77%	78%	77%	79%

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		1995-2004 Averaged
		63%	67%	69%	70%	71%	71%	70%	65%	64%	61%		67%
		67%	67%	68%	67%	64%	57%	60%	58%	59%	55%		62%
		63%	64%	65%	65%	64%	59%	55%	51%	51%	50%		59%

Note: No value is reported on the Trilateral Website for Japan for 1996.
The 64% value shown is the average of the 1995 and 1997 values.

Table 5: Summary

PATENT PERCENTAGES

(Patents Granted as Percentage of Applications Filed/Examinations Requested)

	Overall Patent Percentage	
	Overall	Prosecution
United States Patent & Trademark Office (1981-2005)	**No Lag**	**Lag**
Based on Original Applications	73%	80%
Based on Original + Divisional Applications	68%	75%
Based on Original + Divisional + CIP Applications	63%	70%
Uncorrected — Based on Total UPR Applications	53%	60%
European and Euro-PCT Applications (1981-2004)	45%	61%
European and Euro-PCT (International Phase) (1981-2004)	35%	49%
Japanese Patent Office (1981-2004)	54%	60%
German Patent Office (1977 Cohort)		41.7%

GRANT RATES

(Applications Allowed as Percentage of Net Disposals)

United States Patent & Trademark Office	**1981-2005**	**1995-2004**
Net Abandoned = Total Abandoned less All Continuing Applications	95%	103%
Net Abandoned = Total Abandoned less Continuations and CIPs	87%	92%
Net Abandoned = Total Abandoned less Continuations	80%	85%
Net Abandoned — Corrected for All Applications Abandoned Without Refiling	77%	79%
Uncorrected Grant Rate	66%	67%

Trilateral Website (Averaged)	**1995-2004**
United States Patent & Trademark Office	67%
European Patent Office	62%
Japanese Patent Office	59%

Table 6: Examination Pendency

U.S. Patent & Trademark Office	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Pendency Time (Months)	22.4	24.2	25.5	25.0	23.2	22.0	20.8	19.9	18.4	18.3	18.2	19.10	19.5

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average
Pendency Time (Months)	19	19.2	20.8	22.2	23.8	25.0	25.0	24.7	24.0	26.7	27.6	29.10	22.5
												Years =	2

Note: USPTO Data is from USPTO Annual Reports for 1981-2005

											Average	
Japanese Patent Office	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**Months**	**Years**
	24.0			19.0	19.0	26.9	27.7	28.7	31.1	26.0	25.3	2

Note: JPO data is the larger of "Pendency Examination in Months" from the Trilateral Statistics Tables for 1995-2003 or the "Examination (First Action Period)" from the JPO Annual Reports for 2001-2005

										Average	
European Patent Office										**Months**	**Years**
	1978-1995: Estimated Average Pendency (Months) from Harhoff & Wagner =									46.9	4
	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**		
Pendency Search (Months)	14.7	14.7	17.2	17.3	18.9	20.6	27.3	26.0	18.5		
Pendency Examination (Months)	24.7	24.4	29.3	33.2	39.0	50.1	46.1	40.6	37.7		
Total EPO Pendency (Months)	39.4	39.1	46.5	50.5	57.9	70.7	73.4	66.6	56.2	55.6	5
	Overall Estimated Average Pendency Months (1978-2003) =									49.8	4

Note: EPO annual data is "Pendency Search in Months" and "Pendency Examination in Months" from the Trilateral Statistics Tables for 1995-2003

Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office - Updated

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Corrected Tables and Figures

TABLE 1: UNITED STATES PATENT AND TRADEMARK OFFICE DATA AND CALCULATIONS (Corrected)

USPTO ANNUAL REPORT DATA	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
UPR Applications Filed	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,571	167,715	172,539	174,553	186,123	221,304	191,116	220,773	240,090	261,041	293,244	326,081	333,688	333,452	355,527	380,955	5,105,848
UPR Applications Allowed	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014	103,093	104,351	107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340
UPR Applications Abandoned	30,358	29,099	35,555	43,313	45,083	49,151	46,190	46,351	47,218	45,750	53,703	59,199	60,763	64,932	66,460	58,358	61,367	60,102	64,062	68,056	72,566	88,417	96,176	107,824	115,232	1,515,285
UPR Application Disposals (Allowed + Abandoned)	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717	162,292	165,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
UPR Patents Issued	67,128	59,853	55,314	67,214	70,244	71,791	82,635	77,844	96,868	89,551	92,474	100,116	97,386	102,130	102,579	105,529	112,646	140,159	143,686	165,504	170,643	162,221	173,072	170,637	152,090	2,729,314
Patents Pending Prior to Allowance (Total Applications)	181,727	216,509	223,101	219,567	215,521	207,774	209,911	215,280	222,755	244,964	254,507	269,596	244,646	261,249	298,522	303,720	275,295	379,484	414,837	485,129	542,007	636,530	674,691	756,604	885,002	

USPTO FOIA DATA (12/22/2005)	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
UPR Application Filings	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,561	167,715	172,539	174,553	186,123	221,304	191,016	220,773	240,090	261,013	293,244	326,081	333,688	333,452	355,527	384,228	5,108,983
Continuation Application Filings																										
Continuations	8,192	9,097	6,764	9,509	11,882	14,036	15,466	16,923	19,184	19,962	22,346	26,086	28,067	31,750	37,563	23,735	28,673	14,016	13,239	17,613	21,436	25,601	26,135	27,989	30,754	506,018
Continued Prosecution Applications (CPAs)																		17,461	25,258	30,888	22,406	8,978	2,333			107,324
Requests for Continued Examination (RCEs)																				1,033	12,438	25,677	39,562	45,945	54,332	178,987
Rule 129 Continuations (R129s)															1,612	5,016	3,737	2,356	949	444	206	118	87	40	8	14,573
Total Continuation Applications (Calculated)	8,192	9,097	6,764	9,509	11,882	14,036	15,466	16,923	19,184	19,962	22,346	26,086	28,067	31,750	39,175	28,751	32,410	33,833	39,446	49,978	56,486	60,374	68,117	73,974	85,094	806,902
Divisional Application Filings																										
Divisionals	5,158	5,839	3,455	4,726	5,174	5,301	5,647	6,546	8,156	8,853	9,382	9,320	9,533	10,570	26,272	9,833	12,537	11,837	13,536	15,548	17,799	18,071	19,688	19,413	19,131	281,325
Divisional Continued Prosecution Applications (DCPAs)																		396	314	260	140	171	36			1,317
Total Divisional Applications Calculated)	5,158	5,839	3,455	4,726	5,174	5,301	5,647	6,546	8,156	8,853	9,382	9,320	9,533	10,570	26,272	9,833	12,537	12,233	13,850	15,808	17,939	18,242	19,724	19,413	19,131	282,642
Continuation-in-Part Applications (CIPs)	5,743	5,871	5,023	5,903	6,648	7,383	7,745	8,432	9,282	10,222	10,980	11,968	12,690	13,753	15,881	10,500	10,914	11,288	12,257	13,764	14,472	14,421	14,566	14,962	15,434	270,102
Total Continuing Application Filings (Calculated)	19,093	20,807	15,242	20,138	23,704	26,720	28,858	31,901	36,622	39,037	42,708	47,374	50,290	56,073	81,328	49,084	55,861	57,354	65,553	79,550	88,897	93,037	102,407	108,349	119,659	1,359,646

Application Abandonments - Not Refiled	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
Original Applications Abandoned Without Refiling	2,139	14,256	26,447	30,345	31,127	30,196	26,205	25,196	24,559	25,488	30,637	30,797	31,008	29,579	27,606	27,051	27,054	27,157	30,000	31,520	33,704	42,061	45,834	46,007	39,322	735,295
Continuing Applications Abandoned Without Refiling	241	2,142	4,168	4,016	3,909	4,176	4,309	4,303	4,482	4,518	5,485	6,086	6,397	6,473	6,660	6,285	5,987	5,581	6,097	5,109	5,900	6,669	7,481	8,022	7,333	131,829
Total Applications Abandoned Without Refiling	2,380	16,398	30,615	34,361	35,036	34,372	30,514	29,499	29,041	30,006	36,122	36,883	37,405	36,052	34,266	33,336	33,041	32,738	36,097	36,629	39,604	48,730	53,315	54,029	46,655	867,124

Patents	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
UPR Patent Count (Total Issued)	65,191	59,855	55,314	67,218	70,255	71,793	82,639	77,846	96,871	89,561	92,473	100,117	97,391	102,129	102,578	105,529	112,641	140,156	143,682	165,499	170,636	162,215	173,064	170,637	152,087	2,727,377
Patents Wherein Parent Patent Was Granted	3,244	4,750	4,586	5,561	5,350	5,359	6,194	6,446	8,399	9,157	9,980	11,644	11,548	12,451	13,139	15,582	18,677	20,446	21,172	24,955	26,964	27,602	29,168	27,762	25,688	355,824
"Original" UPR Patents	61,947	55,105	50,728	61,657	64,905	66,434	76,445	71,400	88,472	80,404	82,493	88,473	85,843	89,678	89,439	89,947	93,964	119,710	122,510	140,544	143,672	134,613	143,896	142,875	126,399	2,371,553

CALCULATIONS

Applications	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
Original Applications (calculated from FOIA Data)	88,420	95,924	82,206	89,401	92,723	94,891	97,549	105,168	114,709	124,524	125,007	125,165	124,263	130,050	139,976	141,932	164,912	182,736	195,460	213,694	237,184	240,651	231,045	247,178	264,569	3,749,337
Original Applications + Divisionals	93,578	101,763	85,661	94,127	97,897	100,192	103,196	111,714	122,865	133,377	134,389	134,485	133,796	140,620	166,248	151,765	177,449	194,969	209,310	229,502	255,123	258,893	250,769	266,591	283,700	4,031,979
Original Applications + Divisions + CIPs	99,321	107,634	90,684	100,030	104,545	107,575	110,941	120,146	132,147	143,599	145,369	146,453	146,486	154,373	182,129	162,265	188,363	206,257	221,567	243,266	269,595	273,314	265,335	281,553	299,134	4,302,081
Continuing Applications as % of Total UPR Applications	18%	18%	16%	18%	20%	22%	23%	23%	24%	24%	25%	27%	29%	30%	37%	26%	25%	24%	25%	27%	27%	28%	31%	30%	31%	27%
Divisional Applications as % of Total UPR Applications	5%	5%	4%	4%	4%	4%	4%	5%	5%	5%	6%	5%	5%	6%	12%	5%	6%	5%	5%	5%	6%	5%	6%	5%	5%	6%

UPR Application Disposals	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
Uncorrected (Abandoned + Allowed)	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717	162,292	165,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
Corrected for Continuation Applications	80,353	74,486	93,167	103,791	108,606	116,036	110,479	117,298	126,506	122,460	133,371	136,206	137,047	140,403	133,851	151,301	164,197	169,314	179,996	184,278	182,948	199,857	216,342	213,199	194,231	3,589,723
Corrected for Continuation and CIP Applications	74,610	68,615	88,144	97,888	101,958	108,653	102,734	108,866	117,224	112,238	122,391	124,238	124,357	126,650	117,970	140,801	153,283	158,026	167,739	170,514	168,476	185,436	201,776	198,237	178,797	3,319,621
Corrected for All Continuing Applications	69,452	62,776	84,689	93,162	96,784	103,352	97,087	102,320	109,068	103,385	113,009	114,918	114,824	116,080	91,698	130,968	140,746	145,793	153,889	154,706	150,537	167,194	182,052	178,824	159,666	3,036,979
Corrected for Applications Abandoned Without Refiling	60,567	70,882	94,991	104,348	110,441	115,293	110,269	117,369	127,513	126,678	138,136	139,976	141,756	143,273	140,832	155,030	168,281	175,783	191,477	202,829	206,472	220,544	241,598	233,378	210,748	3,748,464

Table 3: PATENT AND ALLOWANCE PERCENTAGES (1981 - 2005) (Corrected)

U. S. PATENT & TRADEMARK OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage (1981-2005)	
UPR Applications Allowed (Annual Reports)	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014	103,093	104,351	107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340		
UPR Patents Issued (FOIA Data)	65,191	59,855	55,314	67,218	70,255	71,793	82,639	77,846	96,871	89,561	92,473	100,117	97,391	102,129	102,578	105,529	112,641	140,156	143,682	165,499	170,636	162,215	173,064	170,637	152,087	2,727,377	**No Lag**	**2 Yr Lag**
Total UPR Applications (FOIA Data)	107,513	116,731	97,448	109,539	116,427	121,611	126,407	137,069	151,331	163,561	167,715	172,539	174,553	186,123	221,304	191,016	220,773	240,090	261,013	293,244	326,081	333,688	333,452	355,527	384,228	5,108,983	53%	60%
Original Applications (Calculated - FOIA Data)	88,420	95,924	82,206	89,401	92,723	94,891	97,549	105,168	114,709	124,524	125,007	125,165	124,263	130,050	139,976	141,932	164,912	182,736	195,460	213,694	237,184	240,651	231,045	247,178	264,569	3,749,337	73%	80%
Original Applications + Divisionals (Calculated)	93,578	101,763	85,661	94,127	97,897	100,192	103,196	111,714	122,865	133,377	134,389	134,485	133,796	140,620	166,248	151,765	177,449	194,969	209,310	229,502	255,123	258,893	250,769	266,591	283,700	4,031,979	68%	75%
Original Applications + Divisions + CIPs (Calculated)	99,321	107,634	90,684	100,030	104,545	107,575	110,941	120,146	132,147	143,599	145,369	146,453	146,486	154,373	182,129	162,265	188,363	206,257	221,567	243,266	269,595	273,314	265,335	281,553	299,134	4,302,081	63%	70%
Patent Percentage - Original Applications + Divisions (3 Yr Composite - 2 Yr Lag)					69%	74%	81%	79%	85%	84%	83%	77%	74%	74%	75%	76%	73%	78%	80%	86%	82%	79%	73%	68%	65%		**Overall Allowance Percentage (1981-2005)**	
																											No Lag	**2 Yr Lag**
Allowance Percentage - Original Applications (3 Yr Composite - 2 Yr Lag)					79%	85%	89%	90%	93%	95%	94%	88%	85%	84%	85%	88%	92%	97%	97%	95%	90%	85%	82%	78%	75%		77%	89%
Allowance Percentage - Origina Applications + Divisions (3 Yr Composite - 2 Yr Lag)					75%	80%	85%	85%	88%	90%	88%	82%	79%	78%	79%	82%	82%	87%	88%	89%	84%	80%	76%	73%	70%		71%	80%

EUROPEAN PATENT OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage (1981-2004)	
Patents Granted	3,346	5,428	9,656	13,311	15,117	18,472	17,143	19,750	22,558	24,756	26,642	30,409	36,664	42,000	41,607	40,069	39,646	36,717	35,357	27,522	34,702	47,381	59,989	58,730		706,972		
Total European and Euro-PCT Applications	24,123	27,419	30,663	35,982	36,914	41,341	45,071	49,777	55,782	60,785	56,036	58,934	56,975	57,845	60,063	63,895	72,837	82,259	89,326	100,699	110,112	106,325	116,791	123,706		1,563,660	**No Lag**	**4 Yr Lag**
Total European and Euro-PCT (Int'l Phase) Applications	25,487	28,955	32,145	37,507	39,988	44,096	48,343	55,894	62,597	70,955	67,584	70,345	70,791	74,250	79,261	87,405	100,392	113,342	123,878	145,241	162,022	161,075	167,353	178,579		2,047,485		
Patent Percentage - European and Euro-PCT Applications (3 Yr Composite - 4 Yr Lag)							62%	59%	57%	59%	60%	60%	62%	66%	70%	70%	71%	67%	64%	55%	50%	50%	58%	61%			45%	61%
Patent Percentage - European and Euro-PCT (Int'l Phase) Applications (3 Yr Composite - 4 Yr Lag)							59%	56%	54%	55%	56%	55%	56%	58%	60%	59%	58%	54%	50%	41%	37%	36%	42%	43%			35%	49%

JAPANESE PATENT OFFICE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Overall Patent Percentage (1981-2004)	
Patents Granted (Registrations)	50,904	50,601	54,701	61,800	50,100	89,900	62,400	55,300	63,301	59,401	36,100	92,100	88,400	82,400	109,100	215,100	147,686	141,448	150,059	125,880	121,742	120,018	122,511	124,192		2,275,144		
Requests for Examination	100,222	98,922	108,212	166,088	107,967	117,760	157,028	100,111	116,625	128,172	146,008	152,853	223,546	144,051	167,923	186,415	205,300	208,392	217,389	261,690	253,826	237,435	243,836	328,105		4,177,876	**No Lag**	**2 Yr Lag**
Applications Filed	218,261	237,513	254,956	284,767	302,995	320,089	341,095	339,399	351,207	367,590	369,396	371,894	366,486	353,301	369,215	376,615	391,572	401,932	405,655	436,865	439,175	421,044	413,092	423,081		8,557,195		
Patent Percentage (3 Yr Composite - 2 Yr Lag)					54%	54%	53%	53%	47%	47%	42%	54%	55%	62%	54%	78%	88%	101%	78%	70%	63%	53%	50%	49%			54%	60%

TABLE 4: GRANT RATES (1981 - 2004) (Corrected)

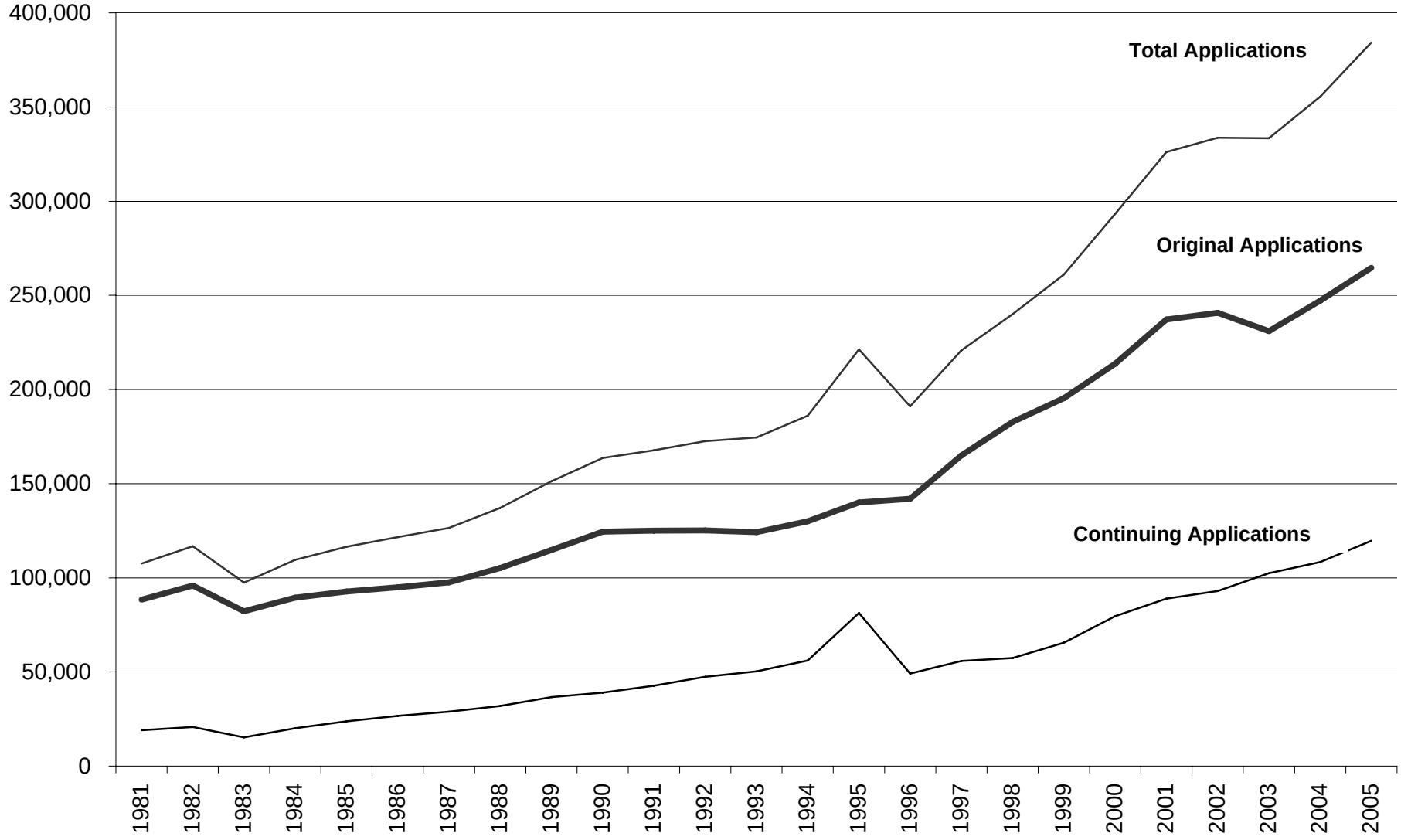
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Applications Allowed (Annual Reports)	58,187	54,484	64,376	69,987	75,405	80,921	79,755	87,870	98,472	96,672	102,014	103,093	104,351	107,221	106,566	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	2,881,340
Applications Abandoned (Annual Reports)	30,358	29,099	35,555	43,313	45,083	49,151	46,190	46,351	47,218	45,750	53,703	59,199	60,763	64,932	66,460	58,358	61,367	60,102	64,062	68,056	72,566	88,417	96,176	107,824	115,232	1,515,285
Application Disposals (Allowed + Abandoned)																										
Uncorrected	88,545	83,583	99,931	113,300	120,488	130,072	125,945	134,221	145,690	142,422	155,717	162,292	165,114	172,153	173,026	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	4,396,625
Corrected for Continuation Applications	80,353	74,486	93,167	103,791	108,606	116,036	110,479	117,298	126,506	122,460	133,371	136,206	137,047	140,403	133,851	151,301	164,197	169,314	179,996	184,278	182,948	199,857	216,342	213,199	194,231	3,589,723
Corrected for Continuation and CIP Applications	74,610	68,615	88,144	97,888	101,958	108,653	102,734	108,866	117,224	112,238	122,391	124,238	124,357	126,650	117,970	140,801	153,283	158,026	167,739	170,514	168,476	185,436	201,776	198,237	178,797	3,319,621
Corrected for All Continuing Applications	69,452	62,776	84,689	93,162	96,784	103,352	97,087	102,320	109,068	103,385	113,009	114,918	114,824	116,080	91,698	130,968	140,746	145,793	153,889	154,706	150,537	167,194	182,052	178,824	159,666	3,036,979
Corrected for All Applications Abandoned Without Refiling	60,567	70,882	94,991	104,348	110,441	115,293	110,269	117,369	127,513	126,678	138,136	139,976	141,756	143,273	140,832	155,030	168,281	175,783	191,477	202,829	206,472	220,544	241,598	233,378	210,748	3,748,464

USPTO Grant Rates	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	1981-2005	1995-2004
Uncorrected	66%	65%	64%	62%	63%	62%	63%	65%	68%	68%	66%	64%	63%	62%	62%	68%	69%	70%	71%	71%	70%	66%	66%	62%	59%	66%	67%
Corrected for Continuation Applications	72%	73%	69%	67%	69%	70%	72%	75%	78%	79%	76%	76%	76%	76%	80%	80%	82%	84%	86%	90%	91%	86%	87%	84%	84%	80%	85%
Corrected for Continuation and CIP Applications	78%	79%	73%	71%	74%	74%	78%	81%	84%	86%	83%	83%	84%	85%	90%	86%	88%	91%	93%	97%	99%	93%	93%	90%	92%	87%	92%
Corrected for All Continuing Applications	84%	87%	76%	75%	78%	78%	82%	86%	90%	94%	90%	90%	91%	92%	116%	93%	96%	98%	101%	107%	111%	103%	103%	100%	103%	95%	103%
Corrected for All Applications Abandoned Without Refiling	96%	77%	68%	67%	68%	70%	72%	75%	77%	76%	74%	74%	74%	75%	76%	78%	80%	81%	81%	82%	81%	78%	78%	77%	78%	77%	79%

TRILATERAL WEBSITE (1995 - 2004)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	1995-2004 Averaged
USPTO	63%	67%	69%	70%	71%	71%	70%	65%	64%	61%	67%
EPO	67%	67%	68%	67%	64%	57%	60%	58%	59%	55%	62%
JPO	63%	64%	65%	65%	64%	59%	55%	51%	51%	50%	59%

Note: No value is reported on the Trilateral Website for Japan for 1996.
The 64% value shown is the average of the 1995 and 1997 values.

Fig. 3 - U.S. Patent Applications (1981-2005) (Corrected)
(FOIA Data)



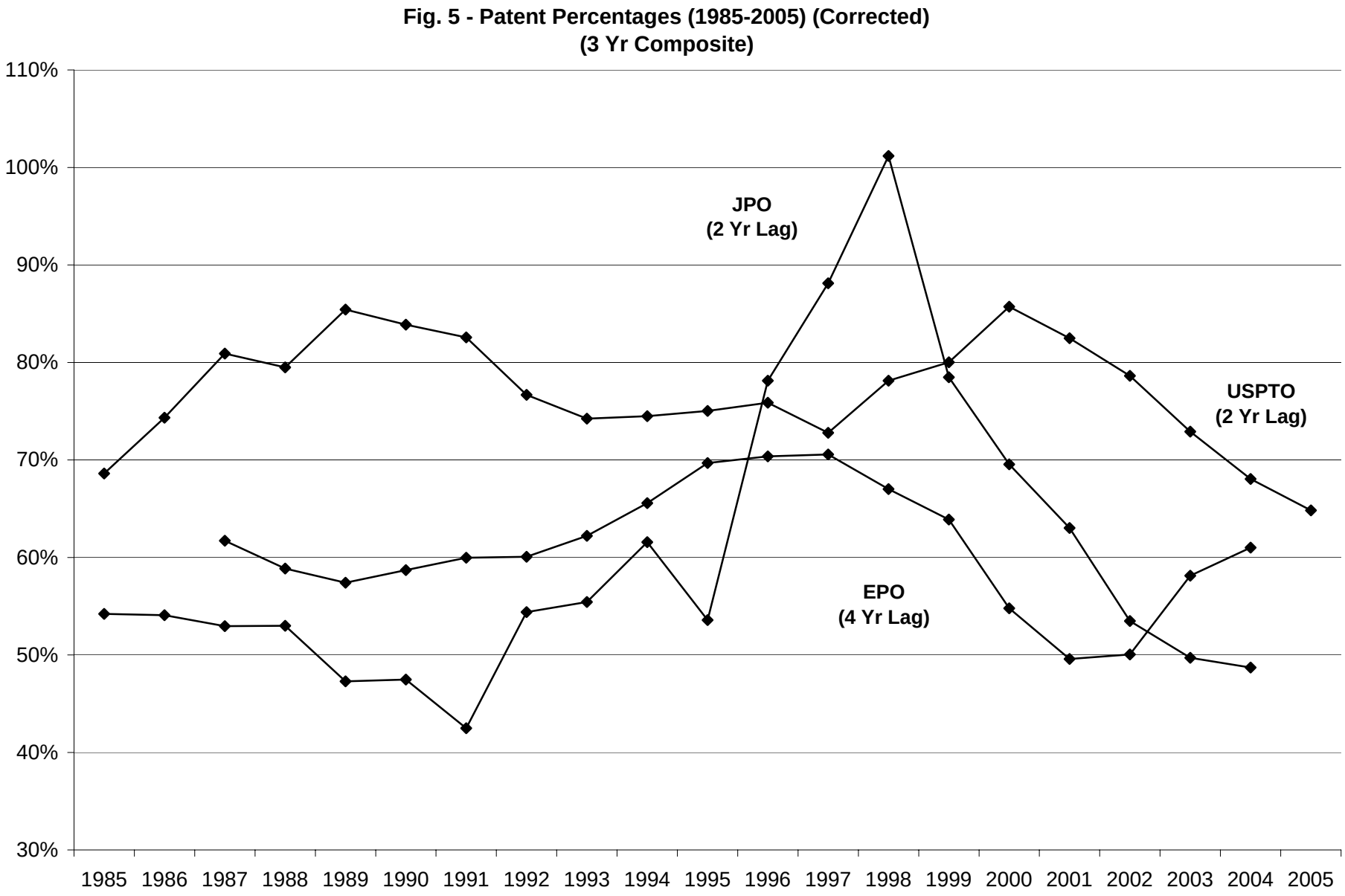


Fig. 5 - Patent Percentages (1985-2005) (Corrected)
(3 Yr Composite)
110%
100%
90%
80%
70%
60%
50%
40%
30%
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
JPO
(2 Yr Lag)
USPTO
(2 Yr Lag)
EPO
(4 Yr Lag)

Fig. 4 - Continuing Applications as Percent of Total Applications (1981-2005) (Corrected)
(FOIA Data)

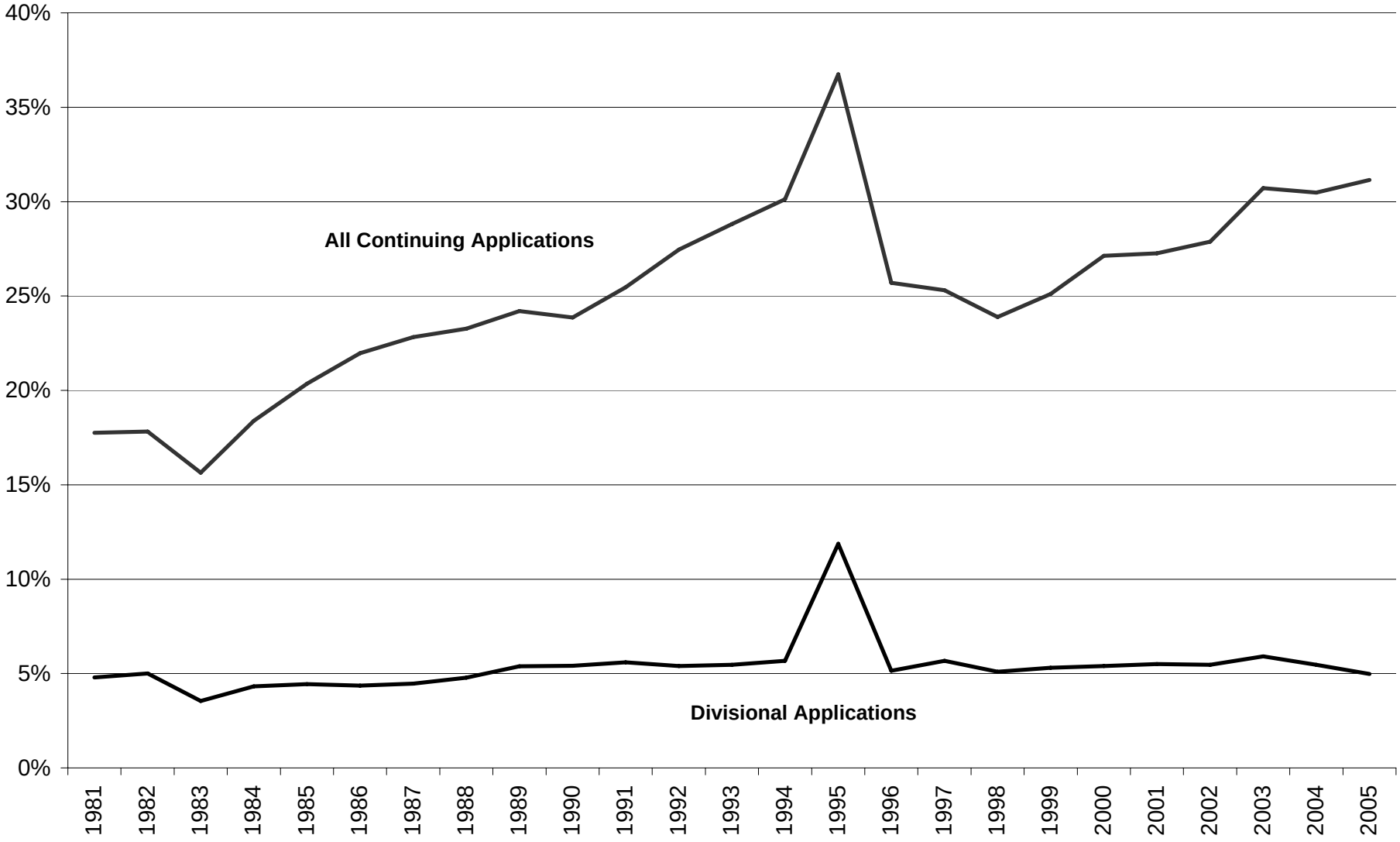


Fig. 6 - USPTO Grant Rates (1981-2005) (Corrected)