Australian Government
Department of Industry and Science

NATIONAL SURVEY OF RESEARCH COMMERCIALISATION (NSRC) DATA CARD 2012 AND 2013

Note: This data card is a sample only of data from the 2012-13 NSRC. Figures may not tally due to rounding.

KEY POINTS (66 responding institutions)

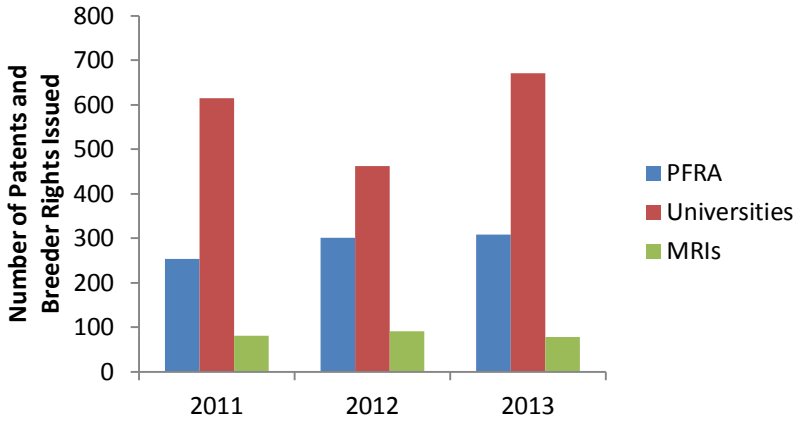
INTELLECTUAL PROPERTY ACTIVITY

- The number of invention disclosures decreased by 17% from 1,705 in 2011 to 1,420 in 2013.
- The number of patent and plant breeder rights filed increased by 7% from 1,757 in 2011 to 1,872 in 2013.
- The total stock of patents and plant breeder's rights decreased by 5% from 11,055 in 2011 to 10,477 in 2013.
- The number of patents and plant breeder rights issued was 950 in 2011, 857 in 2012 and 1,059 in 2013, an increase of 10% from 2011 to 2013.

Table 1: Number of patents and plant breeder rights issued by sector, 2011-2013

	2011	2012	2013
PFRA	254	302	309
Universities	615	462	671
MRIs	81	92	79
Total	**950**	**857**	**1059**

Figure 1: Number of patents and plant breeder rights issued by sector, 2011-2013



LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)

- Adjusted LOA income was $130m in 2011, $345m in 2012 and $120m in 2013.
- The number of active LOAs decreased by 14% from 2,867 in 2011 to 2,454 in 2013.
- The number of LOAs yielding income increased by 20% from 791 in 2011 to 950 in 2013.

Table 2: Number of LOAs yielding income by sector, 2011-2013

	2011	2012	2013
PFRA	276	280	281
Universities	447	434	618
MRIs	68	48	51
Total	**791**	**762**	**950**

Figure 2: Number of LOAs yielding income by sector, 2011-2013

START-UP COMPANY ACTIVITY

- Capital raising for research commercialisation activities decreased from $167m in 2011 to $96m in 2013. The reduction was partly due to the decreased research commercialisation activities of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in 2013 (from $74m in 2011 to $40m in 2013).
- Operational start-up companies increased by 9% from 199 in 2011 to 216 in 2013.
- New start-up company formation increased by 53% from 17 in 2011 to 26 in 2013.

Table 3: Number of new start-up companies formed by sector, 2011-2013

	2011	2012	2013
PFRA	2	3	3
Universities	14	12	21
MRIs	1	7	2
Total	**17**	**22**	**26**

Figure 3: Number of new start-up companies formed by sector, 2011-2013

CONTRACTS, CONSULTANCIES AND DIRECT SALES

- The total number of direct sales transactions increased by 88% from 14,642 in 2011 to 27,519 in 2013.
- The total number of research contracts and consultancies was 15,429 in 2011, 11,146 in 2012 and 12,228 in 2013.

Table 4: Number of contracts and consultancy agreements entered into by sector, 2011-2013

	2011	2012	2013
PFRA	3,022	1,994	1,965
Universities	11,849	8,915	10,046
MRIs	558	237	217
Total	**15,429**	**11,146**	**12,228**

Figure 4: Number of contracts and consultancy agreements entered into by sector, 2011-2013

SKILLS DEVELOPMENT AND KNOWLEDGE EXCHANGE ACTIVITY

- The number of institutions offering in-house training increased by 7% from 41 in 2011 to 44 in 2013.
- The number of in-house training participants declined by 24% from 5,491 in 2011 to 4,169 in 2013.
- The number of research postgraduates employed in start-up companies was 139 in 2011, 97 in 2012 and 89 in 2013, a decrease of 36% from 2011 to 2013.

Table 5: Number of research postgraduates employed in start-up companies by sector, 2011-2013

	2011	2012	2013
PFRA	39	0	0
Universities	65	81	73
MRIs	35	16	16
Total	**139**	**97**	**89**

Figure 5: Number of research postgraduates employed in start-up companies by sector, 2011-2013

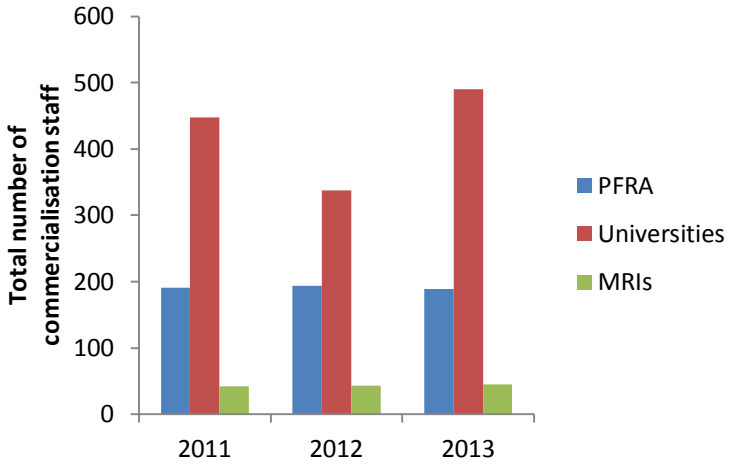
RESOURCES FOR RESEARCH COMMERCIALISATION

- Net commercialisation costs, including marketing, legal, staff and non-staff costs increased from $134m in 2011 to $141m in 2013.
- The total number of commercialisation staff, which includes commercialisation legal, marketing and industry engagement staff was 681 in 2011, 575 in 2012 and 724 in 2013, an increase of 6% from 2011 to 2013.

Table 6: Total number of commercialisation staff by sector, 2011-2013

	2011	2012	2013
PFRA	191	194	189
Universities	448	338	490
MRIs	42	43	45
Total	**681**	**575**	**724**

Figure 6: Total number of commercialisation staff by sector, 2011-2013



INTERNATIONAL COMPARISIONS

INTELLECTUAL PROPERTY ACTIVITY

Number of Invention Disclosures per $US100m research expenditure

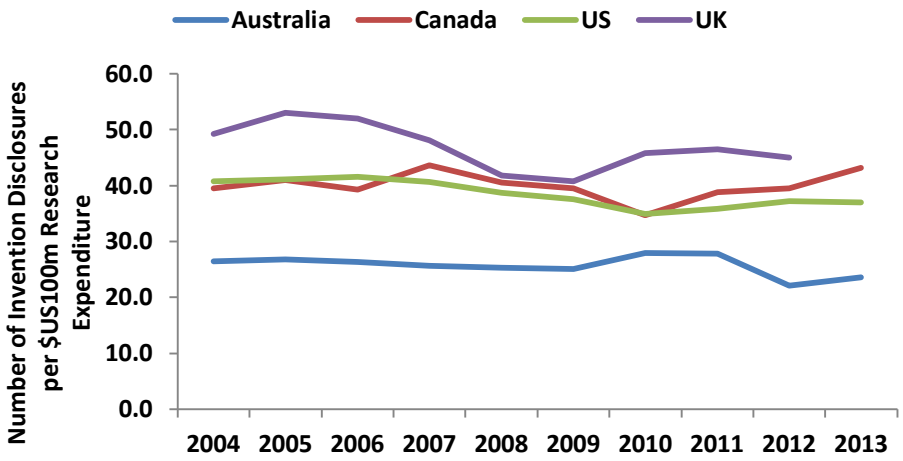
- Australia lags behind the US, Canada and the UK in the number of invention disclosures per $US100m of research expenditure with Australian institutions averaging 26 in the period 2004 to 2013, with the US averaging 39, Canada 40, and the UK 47.
- While the number of invention disclosures by US institutions per $US100m of research expenditure has slightly declined in 2013, Australian and Canadian institutions have trended upward in 2012 and 2013.

Table 7: Number of Invention Disclosures per $US100m research expenditure, 2004-2013

	Australia	Canada	US	UK
2004	26.5	39.5	40.8	49.2
2005	26.8	41.0	41.1	53.1
2006	26.3	39.3	41.6	52.0
2007	25.6	43.6	40.6	48.1
2008	25.3	40.5	38.7	41.8
2009	25.1	39.5	37.6	40.8
2010	28.0	34.7	35.0	45.8
2011	27.9	38.9	35.8	46.6
2012	22.1	39.5	37.3	45.0
2013	23.6	43.2	36.9	-

Note: (-) No data available

Figure 7: Number of Invention Disclosures per $US100m research expenditure, 2004-2013



Number of US Patents issued per $US100m research expenditure, 2004-2013

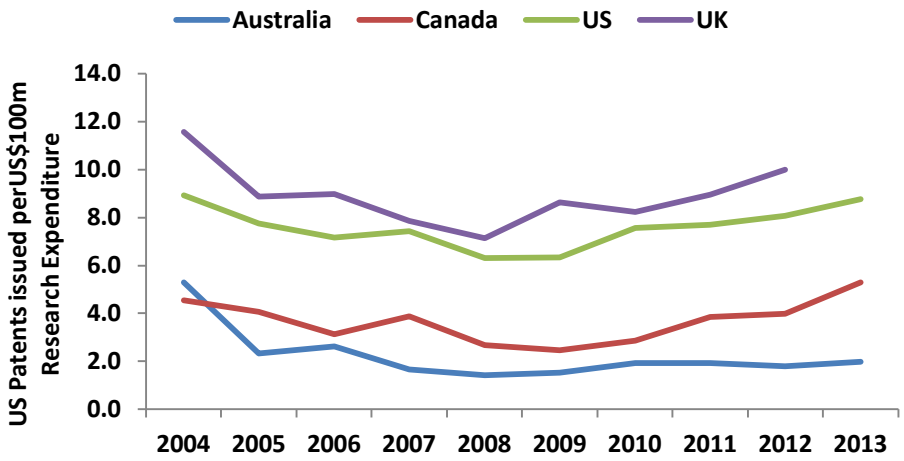
- After a significant fall from 2004 to 2005, the number of US patents issued to Australian institutions per $US100m of research expenditure has since remained relatively constant.
- The number of US patents issued to institutions in the US, the UK and Canada per $US100m of research expenditure has slowly trended upward over recent years (2012 & 2013 for US and Canada and 2010 & 2011 for the UK).

Table 8: US Patents issued per $US100m research expenditure, 2004-2013

	Australia	Canada	US	UK
2004	5.3	4.5	8.9	11.6
2005	2.3	4.1	7.7	8.9
2006	2.6	3.1	7.2	9.0
2007	1.7	3.9	7.4	7.9
2008	1.4	2.7	6.3	7.1
2009	1.5	2.5	6.3	8.6
2010	1.9	2.9	7.6	8.2
2011	1.9	3.9	7.7	9.0
2012	1.8	4.0	8.1	10.0
2013	2.0	5.3	8.8	-

Note: (-) No data available

Figure 8: US Patents issued per $US100m research expenditure, 2004-2013



LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)

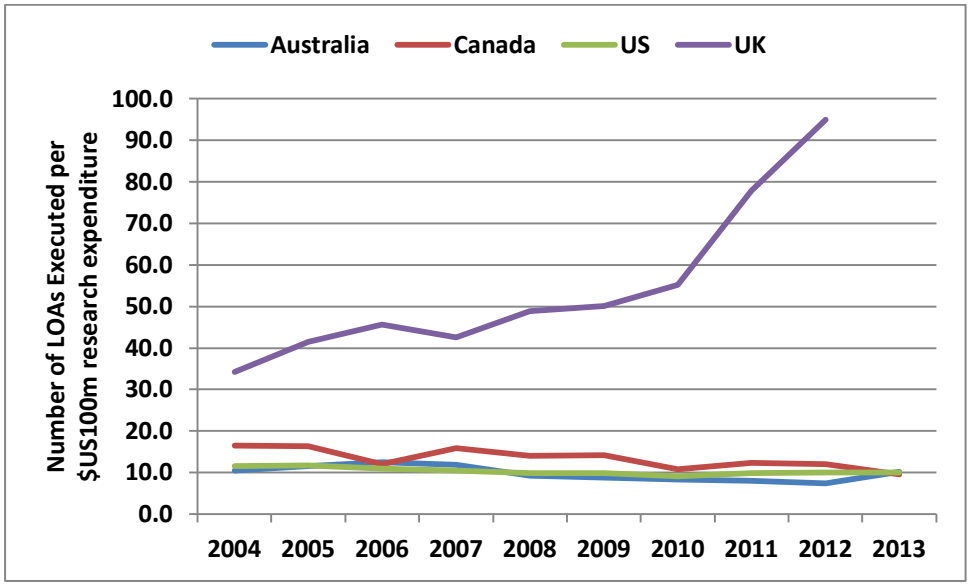
- The number of LOAs executed per $US100m of research expenditure by Australia dropped from 10.6 in 2004 to 10.1 in 2011. A similar downward trend is reported for Canada and the US over the same period, while the UK reported a marked increase. On average, the number of LOAs executed per $US100m of research expenditure by Australia was 10 from 2004 to 2011.

Table 9: Number of LOAs Executed per $US100m research expenditure, 2004-2013

	Australia	Canada	US	UK
2004	10.6	16.4	11.6	34.1
2005	11.6	16.3	11.7	41.5
2006	12.5	12.0	10.9	45.6
2007	11.9	16.0	10.5	42.5
2008	9.2	14.1	9.9	48.9
2009	8.9	14.2	9.9	50.1
2010	8.4	10.8	9.1	55.2
2011	8.1	12.3	9.9	77.8
2012	7.4	12.1	10.0	95.0
2013	10.1	9.5	10.1	-

Note: (-) No data available

Figure 9: Number of LOAs Executed per $US100m research expenditure, 2004-2013



START-UP COMPANY ACTIVITY

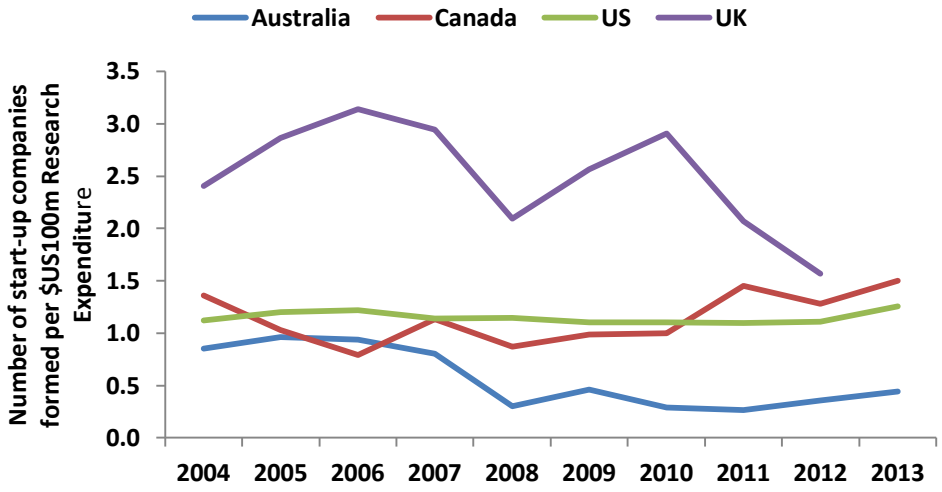
- The number of Australian start-up companies formed per $US100m of research expenditure has gradually declined from 0.9 in 2004 to 0.4 in 2013. Overall, Australia has remained relatively constant on the rate of start-up company formation over recent years. The US has maintained a stable rate of start-up company formation per $US 100m of research expenditure at a rate of around 1.1 over the years.
- Canada and the US have all demonstrated an upward trend regarding the rate of start-up company formation per $US100m of research expenditure over recent years while the rate of start-up company formation in the UK has declined.

Table 10: Number of start-up companies formed per $US100m research expenditure, 2004-2013

	Australia	Canada	US	UK
2004	0.9	1.4	1.1	2.4
2005	1.0	1.0	1.2	2.9
2006	0.9	0.8	1.2	3.1
2007	0.8	1.1	1.1	2.9
2008	0.3	0.9	1.1	2.1
2009	0.5	1.0	1.1	2.6
2010	0.3	1.0	1.1	2.9
2011	0.3	1.5	1.1	2.1
2012	0.4	1.3	1.1	1.6
2013	0.4	1.5	1.3	-

Note: (-) No data available

Figure 10: Number of start-up companies formed per $US100m research expenditure, 2004-2013



TIME SERIES DATA 2000-2013 (60 institutions)

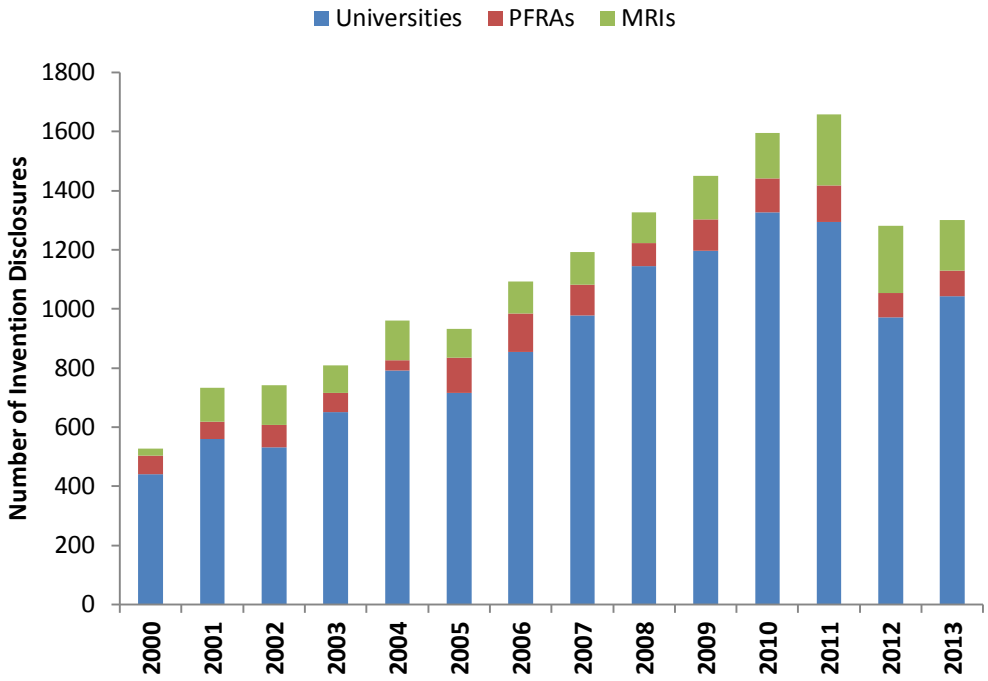
INTELLECTUAL PROPERTY ACTIVITY

- The number of invention disclosures has increased by 146%, from 528 in 2000 to 1,300 in 2013. Overall, there has been a steady increase in invention disclosures across all institution types with the highest contribution from universities.
- The total number of new patent and plant breeder rights applications filed in Australia and the US has increased by 15%, from 574 in 2000 to 658 in 2013.
- The number of patents and plant breeder rights issued worldwide has increased by 94%, from 524 in 2000 to 1,019 in 2013.

Table 11: Number of invention disclosures by sector, 2000-2013

	Universities	PFRAs	MRIs	TOTAL
2000	441	62	25	528
2001	560	59	115	734
2002	531	77	134	742
2003	652	65	93	810
2004	791	35	135	961
2005	717	119	96	932
2006	855	130	107	1092
2007	979	103	110	1192
2008	1145	77	106	1328
2009	1198	106	146	1450
2010	1328	114	154	1596
2011	1295	123	241	1659
2012	971	82	228	1281
2013	1044	86	170	1300

Figure 11: Number of invention disclosures by sector, 2000-2013



LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)

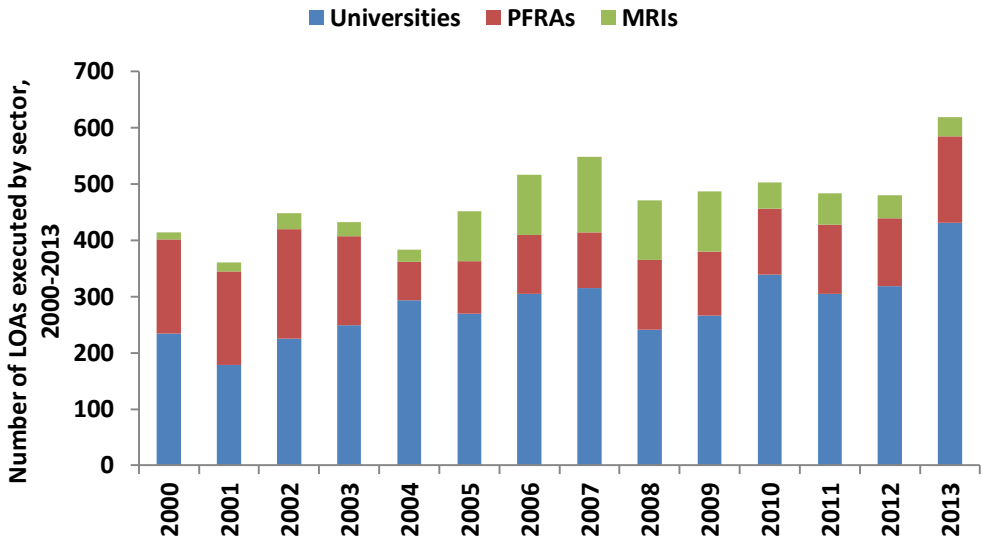
- The number of LOAs yielding income per annum has increased by 94% from 489 in 2000 to 947 in 2013.
- Adjusted LOA income in constant 2013 prices has dropped by about 20% from $150m in 2000 to $120m in 2013.
- The number of LOAs executed per annum has increased by 50%, from 414 in 2000 to 619 in 2013. The university sector recovered after sharp drops in 2008 and 2009, to a record high of 339 LOAs executed in 2010. While PFRAs remained stable, MRIs experienced a 17% decline, from 41 in 2012 to 34 in 2013.

Table 12: Number of LOAs executed by sector, 2000-2013

	Universities	PFRAs	MRIs	TOTAL
2000	234	168	12	414
2001	**179**	**166**	**15**	**360**
2002	225	195	28	448
2003	**249**	**158**	**25**	**432**
2004	294	68	21	383
2005	**269**	**94**	**90**	**452**
2006	305	105	107	517
2007	**315**	**99**	**135**	**549**
2008	241	124	106	471
2009	**266**	**114**	**107**	**487**
2010	339	117	47	503

	Universities	PFRAs	MRIs	TOTAL
2011	**305**	**123**	**55**	**483**
2012	319	120	41	480
2013	**431**	**154**	**34**	**619**

Figure 12: Number of LOAs executed by sector, 2000-2013



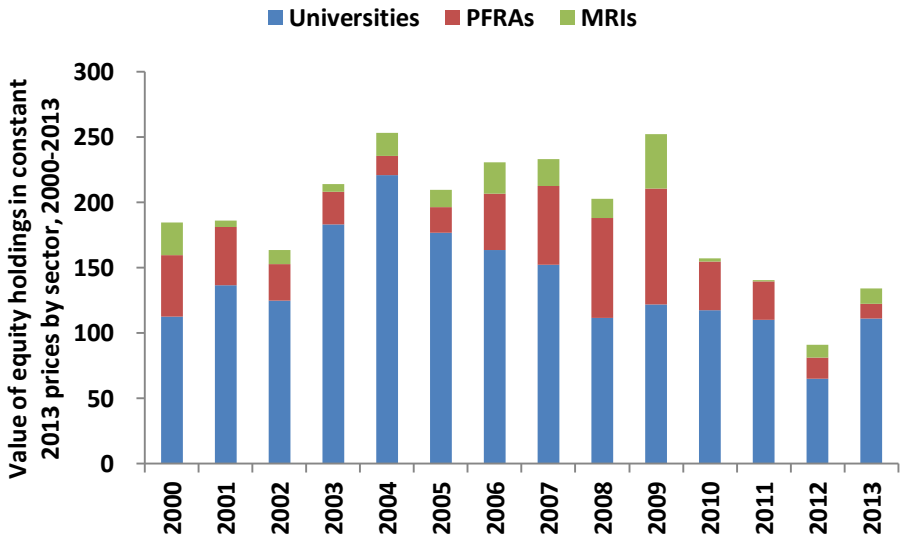
START-UP COMPANY ACTIVITY

- Start-up company formation has fallen by 53% from 47 in 2000 to 22 in 2013. The highest start-up company formation was recorded in 2001 at 62 start-up companies formed.
- The number of start-up companies operational with institutional equity rose from 69 in 2000 to a high of 206 in 2004. While not reaching the 2004 levels the 2013 figure of 182 was an increase of 163% from 2000 to 2014.
- The value of equity holdings in constant 2013 prices for universities rose from $113m in 2000 to a high of $221m in 2004 and has dropped back to $111m in 2013.
- PFRAs have suffered a 77% drop in the value of equity holdings in constant 2013 prices from $47m in 2000 to $11m in 2013. MRIs also experienced a decrease in the value of equity holdings from $25m in 2000 to $11m in 2013.

Table 13: Value of equity holdings in constant 2013 prices ($m) by sector, 2000-2013

	Universities	PFRAs	MRIs	TOTAL
2000	113	47	25	184
2001	136	45	5	186
2002	125	28	11	164
2003	183	25	6	214
2004	221	14	17	253
2005	177	20	13	210
2006	163	44	24	231
2007	152	60	21	233
2008	112	76	15	203
2009	122	89	41	252
2010	118	37	2	157
2011	110	29	1	141
2012	65	16	10	91
2013	111	11	12	134

Figure 13: Value of equity holdings in constant 2013 prices ($m) by sector, 2000-2013



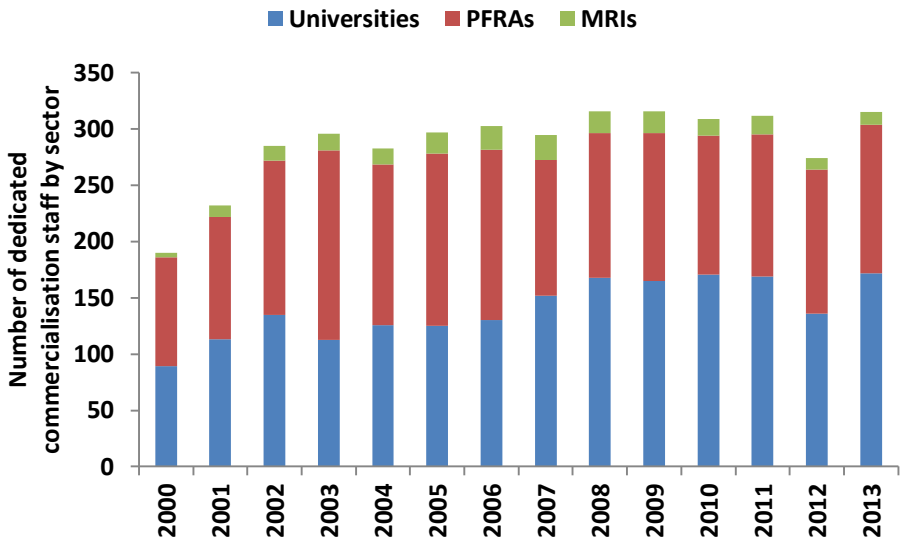
COMMERCIALISATION STAFF

- Over the period 2000 to 2013, the total level of dedicated commercialisation staff has increased by 66%, growing from 190 FTE in 2000 to 315 FTE in 2013.

Table 14: Number of dedicated commercialisation staff in FTE by sector, 2000-2013

	Universities	PFRAs	MRIs	TOTAL
2000	89	97	4	190
2001	113	109	10	232
2002	135	137	13	285
2003	113	168	15	296
2004	126	143	14	283
2005	125	153	19	297
2006	131	151	21	303
2007	152	121	22	294
2008	168	129	19	315
2009	165	131	20	316
2010	171	124	15	309
2011	169	126	16	312
2012	136	128	11	274
2013	172	132	11	315

Figure 14: Number of dedicated commercialisation staff by sector, 2000-2013



Source: National Survey of Research Commercialisation, 2012-13