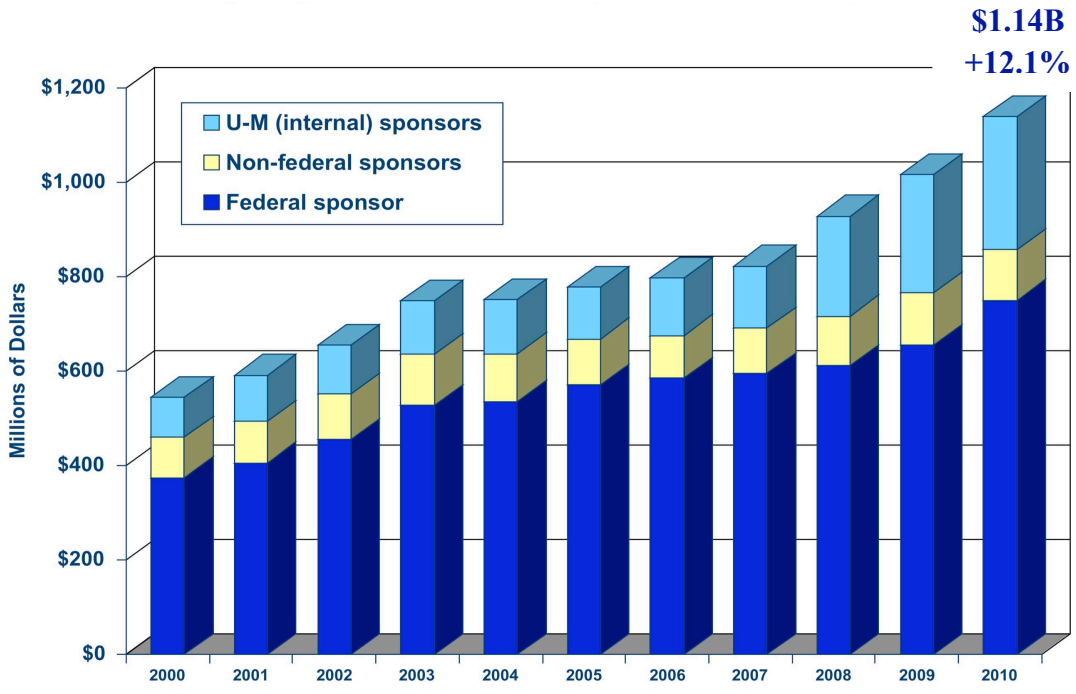
UNIVERSITY OF MICHIGAN
Office of the Vice President for Research

# Annual Report on Research and Scholarship
# FY2010 Financial Summary

Stephen R. Forrest
Vice President for Research
Office of the Vice President for Research
January 20, 2011

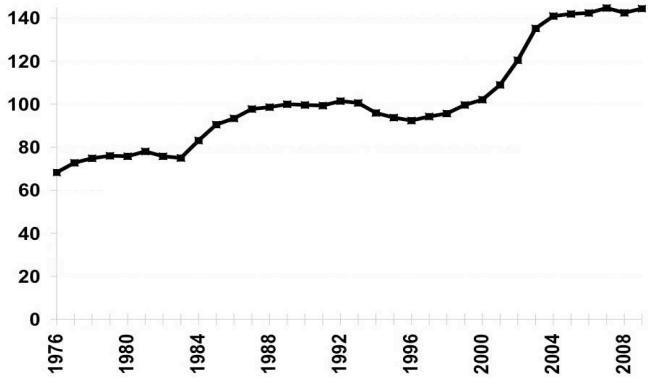
The University of Michigan expenditures in support of research, scholarship and creative activity continued at a rapid pace in Fiscal Year 2010 – total expenditures for the second year in a row surpassed $1 billion, reaching $1,139,493,986. The total is an increase of 12.1% over FY2009. Overall, the University's research portfolio is the largest in the country for a public university. (In the most recent NSF report based on FY2009 research expenditures, U-M was listed first among public universities and second overall. See Table 6.) The University's research expenditures growth trend for the last decade is summarized in Figure 1.

**Figure 1: Research Expenditures by Major Sponsor Group, FY2001-2010**



Total research expenditures have doubled during the decade, and resumed a healthy level of growth in the last two years after several years of small increases. This growth is occurring in spite of a no-growth federal funding trend for research, indicating U-M's exceptionally strong competitive standing among its peers. This trend through 2009 is shown in Figure 2. Due to the addition of "stimulus" spending on research, federal R&D should show an increase for 2010 and 2011. The longer-term role of federal R&D support is less certain.

**Figure 2: Trend in Federal R&D, FY1976-2009**
**in billions of constant FY2008 dollars**




Source: AAAS

Just under one-third of the University's total non-hospital budget comes from research funding, including the federal government, industry, and foundations. Table 1 shows the total research expenditures divided into the three major sponsor groups of federal, non-federal and University spending. Within the non-federal group, the industry, foundation and State of Michigan components are broken out. Indirect industry funding is the result of an industry subcontract where the original source of funds is the federal government and so is counted in that major sponsor group.

**Table 1: U-M Research Expenditures by Major Sponsor Group, FY2010**

| Sponsor Group | Expenditures | % of total |
|---|---|---|
| Total Federal Government | $750,937,613 | 65.9% |
| Total Non-Federal Sponsors | $106,762,901 | 9.4% |
| *Industry (direct)* | *$39,269,613* | *3.4%* |
| *** Industry (indirect)* | *$18,321,297* | |
| *Foundations* | *$24,881,157* | *2.2%* |
| *State of Michigan/Counties/Cities* | *$3,792,924* | *0.3%* |
| Total U-M Funds | $281,793,811 | 24.7% |
| Total Research Expenditures | $1,139,493,986 | |

***subcontracts from industry included under federal government as the prime sponsor; see also Table 3.*

Federal funding, which comprises just under two-thirds of the U-M's current research total, has long been the largest source of research support at the U-M. University internal funds allocated by schools and colleges, departments, and OVPR – a vital factor contributing to the University's success in obtaining external funding – accounted for one-quarter of our spending in FY2010. We note that the sponsored research funding was obtained only through competitive proposals submitted by our faculty, indicating that the U-M's long-term investment in faculty recruitment is paying off at this critical time.

Table 2 provides additional detail about the sources of research funding for FY2009 and FY2010, including the year-to-year change in dollar amounts, and percent. Additional details can be found in Appendix I.

**Table 2: U-M Research Expenditures**
**Percent Change by Major Sponsor Group, FY2009-2010**

| Sponsor Group | FY09 | % of total | FY10 | % of total | $ Chg. | % Chg. |
|---|---|---|---|---|---|---|
| Total Federal | $654,918,595 | 64.4% | $750,937,273 | 65.9% | $86,031,832 | 14.7% |
| *NIH* | *$421,453,708* | *41.5%* | *$507,485,540* | *44.5%* | *$86,031,832* | *20.4%* |
| *NSF* | *$67,280,046* | *6.6%* | *$67,331,716* | *5.9%* | *$51,670* | *0.1%* |
| *DOD* | *$64,354,926* | *6.3%* | *$65,970,563* | *5.8%* | *$1,615,637* | *2.5%* |
| *Energy* | *$21,737,061* | *2.1%* | *$27,145,008* | *2.4%* | *$5,407,947* | *24.9%* |
| *N.A.S.A.* | *$16,566,350* | *1.6%* | *$16,412,115* | *1.4%* | *-$154,235* | *-0.9%* |
| *Transportation* | *$13,129,204* | *1.3%* | *$10,456,674* | *0.9%* | *-$2,672,530* | *-20.4%* |
| *Commerce* | *$7,429,913* | *0.7%* | *$9,489,189* | *0.8%* | *$2,059,276* | *27.7%* |
| Total Non-Federal | $111,988,922 | 11.0% | $106,762,901 | 9.4% | -$5,226,021 | -4.7% |
| *Industry* | *$43,317,167* | *4.3%* | *$39,269,613* | *3.4%* | *-$4,047,554* | *-9.3%* |
| *Foundations* | *$23,857,411* | *2.3%* | *$24,881,157* | *2.2%* | *$1,023,746* | *4.3%* |
| *State of Mi./Local Govt.* | *$4,555,854* | *0.4%* | *$3,792,924* | *0.3%* | *-$762,930* | *-16.7%* |
| Total U-M | $249,658,394 | 24.6% | $281,793,811 | 24.7% | $32,135,417 | 12.9% |
| Total Expenditures | $1,016,565,912 | | $1,139,493,986 | | $122,928,074 | 12.1% |

Table 3 provides a picture of the U-M's industry volume broken out by separate sources of private sector research support. While direct contracts with industry fell due to the significant economic downturn of 2009-10, the U-M has seen growth via subcontracts from industry and from grants with companies, foundations and professional organizations. Overall, the nearly flat trend from FY2009 to FY2010 is most likely due to the ongoing recession and its dampening effect on industry research spending.

**Table 3: U-M Industry Research Support, FY2009-2010**

| | FY09 | FY10 | % Chg. |
|---|---|---|---|
| Industry Research (total) | $62,215,932 | $62,477,883 | 0.4% |
| *Direct Contract* | *$43,341,051* | *$39,013,143* | *-10.0%* |
| *Subcontract (on Federal Prime)* | *$15,969,455* | *$18,321,297* | *14.7%* |
| *Corp. Foundations, Prof. Org., etc.* | *$1,227,736* | *$3,429,752* | *179.4%* |
| *Other Industry Research* | *$1,677,690* | *$1,713,691* | *2.1%* |

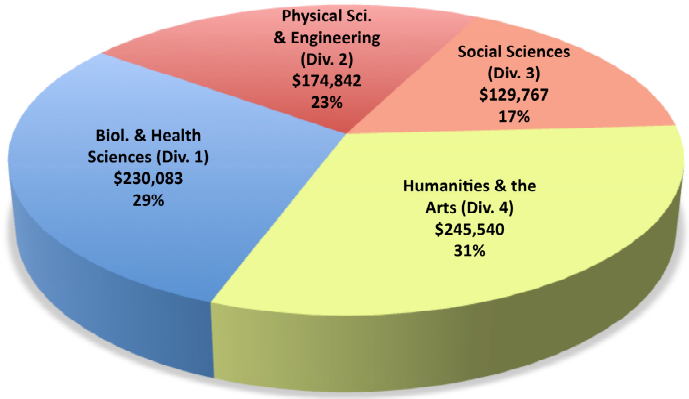
Another useful snapshot of the research enterprise is the breakdown of expenditures by University unit. In Table 4, the expenditures for FY2010 are allocated to each school and college and the percent change from FY2009 for each is noted. As has been the case for many years, the Medical School's portfolio is the largest on campus, at nearly 44% of the University total. Engineering, ISR, LSA and Public Health round out the top five. The OVPR Units item represents the sum of expenditures by the independent research units that report to OVPR rather than a school or college. Additional details of School and College research expenditures can be found in Appendix II.

**Table 4: Research Expenditures by U-M Unit, FY2010**

| | FY10 | change from FY09 | | FY10 | change from FY09 |
|---|---|---|---|---|---|
| Medical School | $498.4M | 11.8% | Rackham | $6.0M | 17.0% |
| Engineering | $180.1M | 12.5% | Social Work | $5.4M | 19.4% |
| ISR | $100.4M | 3.1% | Nursing | $4.9M | 0.5% |
| LSA | $111.3M | 30.4% | Kinesiology | $4.3M | 24.6% |
| Public Health | $61.2M | 13.3% | Information | $3.8M | -7.8% |
| OVPR Units | $31.5M | -11.0% | Law | $3.4M | -24.3% |
| Dentistry | $19.7M | 21.6% | Public Policy | $2.7M | 12.0% |
| SNRE | $13.4M | 4.6% | CA&UP | $833K | -39.2% |
| Education | $10.4M | -18.7% | UM-Flint | $579K | 5.0% |
| Pharmacy | $8.1M | 12.1% | Music | $322K | 0.2% |
| Business | $7.8M | -16.7% | Art and Design | $138K | 5.1% |
| UM-Dearborn | $6.2M | -1.2% | Other Units | $36.0M | 35.0% |

One significant way that OVPR contributes to research and scholarship in the schools and colleges is through its Faculty Grants and Awards Program. Figure 3 shows the breakdown of OVPR allocations for FY2010 by broad disciplinary area. The program provides bridging funds for projects, seed funding for young faculty as well as for senior faculty who are changing research direction, and support in areas where sponsor funding is unusually constrained. Thus, one-third of the total funding from this program supports the arts and humanities, although the total external funding brought in by these fields is less than 1% of our total research volume.

**Figure 3: OVPR Faculty Grants and Awards Program Allocations by Division, FY2010**



A significant OVPR responsibility is oversight of the **Office of Technology Transfer** (OTT). One measure of the University's effectiveness in working with industry is found in OTT's performance trends. Figures 4 and 5 display those trends since 2002.

While the overall trend of tech transfer revenues is upward, the amounts in particular years can rise due to the presence of one or two large payments or an equity sale, while a drop may indicate that a large deal simply did not occur in that particular year. These tech transfer revenues are used to provide incentives to faculty inventors, to support additional high-impact research on campus, and to fund OVPR efforts at increasing industry research impact through direct project funding and support of the Business Engagement Center, and the U-M Startup Accelerator at the North Campus Research Complex (NCRC).

**Figure 4: Office of Technology Transfer Performance Indicators, FY2002-2010**

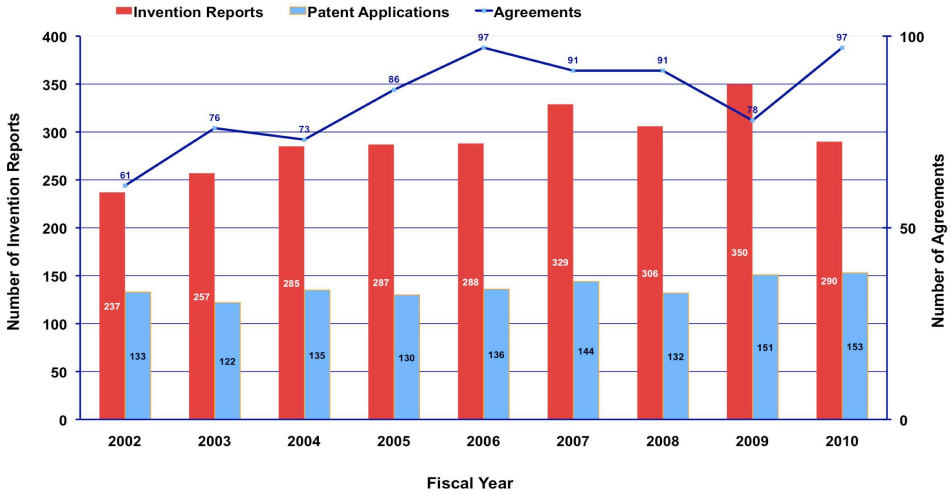
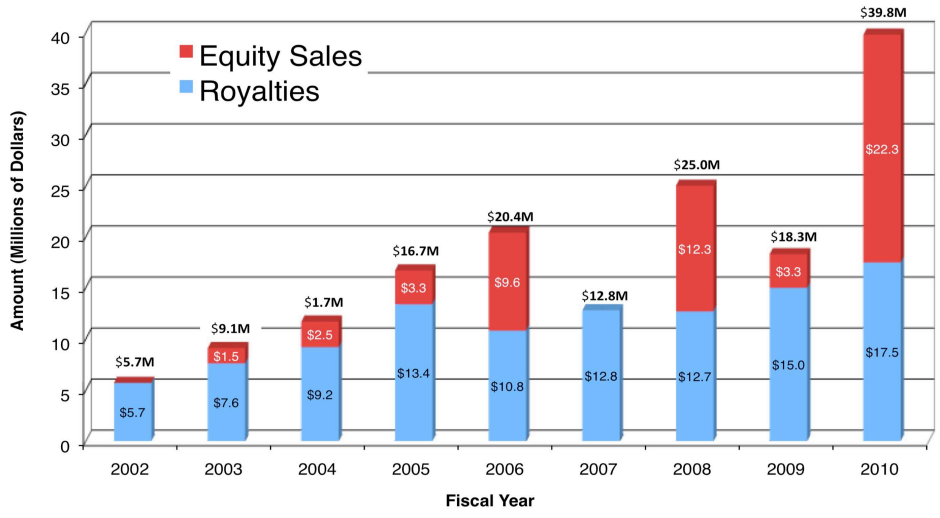



**Figure 5: Office of Technology Transfer Revenues, FY2002-2010**




The **Business Engagement Center** (BEC), now three years old, provides a gateway for members of the private sector wishing to utilize U-M resources or partner with our faculty. The operation reports to

both OVPR and the U-M Office of Development. Over the past year, the BEC has processed some 400 inquiries from businesses, and the number of requests for assistance continues to grow.

The BEC plays a key role as a partner in local economic development and works closely with other organizations such as Ann Arbor SPARK, Michigan Economic Development Corporation, and Chambers of Commerce around the state. Through these partnerships, facilitated by the BEC, the University can expand its footprint in the business community by helping to attract, retain and nurture high-growth companies. One recent success was the BEC's role in helping to attract the U.S. Patent and Trademark Office satellite operation to Detroit.

The BEC recently relocated its central office to the NCRC, where it is co-located with the U-M Office of Technology Transfer and the faculty startup accelerator. Satellite BEC offices on North and Central Campuses serve to broaden the organization's outreach to the business community. Together, the offices work to create and expand partnerships with companies by linking business needs with University resources in research, technology, education and student talent on the U-M campuses.

## Federal Stimulus Funds

Starting in the latter part of FY2010, U-M faculty began receiving research awards which came from so-called "stimulus" funding, grants made by federal funding agencies with funds provided by the American Recovery and Reinvestment Act (ARRA). U-M faculty have done very well in competing for these funds, the bulk of which will appear in the research expenditure reports for FY2010 and FY2011. Through November 2010, the U-M has been awarded funding for 547 projects totaling $301.1 million. This support will jump-start a broad variety of research projects of benefit to society in the form of valuable knowledge and new technologies. Table 5 is a list by school, college and other units of the total ARRA-based award amounts as of November 30, 2010.

**Table 5: Total Funds Awarded under ARRA by Unit** (Nov. 30, 2010)

| | | |
|---|---|---|
| Totals: | 547 Projects | $301,071,334 |
| Medical School | | $93,007,243 |
| Institute for Social Research | | $55,618,592 |
| College of Engineering | | $50,129,738 |
| School of Public Health | | $40,328,474 |
| College of Literature, Science & Arts | | $22,203,552 |
| Provost & Exec VP Academic Affairs | | $8,775,400 |
| Life Sciences Institute | | $5,448,698 |
| School of Dentistry | | $4,459,971 |
| Rackham Graduate School | | $4,231,618 |
| Business Operations | | $3,313,733 |
| College of Pharmacy | | $2,484,347 |
| Dearborn Col of Engineering | | $2,245,121 |
| Vice President for Research | | $1,904,360 |
| School of Nursing | | $1,356,479 |
| School of Information | | $1,309,183 |
| Center for Human Growth & Dev | | $1,263,158 |
| Dearborn Office of Academic Affairs | | $733,500 |
| Flint VC Student Services and Enrollment | | $627,200 |
| Flint Health Profession Studies | | $300,000 |
| VP for Student Affairs | | $296,863 |
| Department of Public Safety | | $288,528 |
| School of Kinesiology | | $250,689 |
| Ross School of Business | | $192,587 |
| School of Nat Resource and Environment | | $168,915 |
| Dearborn College of Arts, Science & Letters | | $128,385 |
| University Hospitals & Health Centers | | $5,000 |

## Conclusion

In FY2010, U-M surpassed $1 billion in research spending for the second year. Likewise, the faculty has demonstrated considerable success in competing for "stimulus" funds to support research. As shown in Table 6 below, U-M ranks first among public universities in total research expenditures as of 2009, and second only behind Johns Hopkins, according to the tally published last fall by the National Science Foundation. This demonstrates the insight and ingenuity of our faculty and the proficiency and efficiency of our administrative systems, which have handled a growing amount of business over the last several years. OVPR anticipates that federal support for research is likely to be flat or to grow only slowly over the next few years, not at the pace it has over the last decade.

In addition to continuing its tradition of broad and deep support for faculty scholarship, the University's success at increasing industry engagement and its ability to utilize the facilities at the North Campus Research Complex for new research programs will be key to continuing the institution's research growth and success in the future.

Much work still needs to be done to firmly establish the U-M as leader in innovation, spin-outs and economic development. Our actions in the next few years will determine how successful we can be in achieving this goal. A concerted long-term commitment must be maintained if we hope to truly "move the needle."

**Table 6: Rank of Top 10 Universities by Total Research Expenditures**



| Institution | FY 2008 | FY 2009 | % Change |
|---|---|---|---|
| Johns Hopkins | $1,681M | $1,856M | +10.4% |
| Michigan | $876M | $1007M | +14.9% |
| Wisconsin | $882M | $952M | +8.0% |
| UC-San Francisco | $885M | $948M | +7.1% |
| UCLA | $871M | $890M | +2.1% |
| UC-San Diego | $842M | $879M | +4.4% |
| Duke | $767M | $805M | +5.0% |
| Washington | $765M | $778M | +1.7% |
| Penn State | $701M | $753M | +7.4% |
| Minnesota | $683M | $741M | +8.5% |

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges, FY 2009.

1) Total includes R&D expenditures for the federal Applied Physics Laboratory on the JHU campus.

## Appendix I: U-M Volume of Research Expenditures By Sponsor (FY2009-2010)

| SOURCE | FY2009 | PERCENT OF TOTAL | FY2010 | PERCENT OF TOTAL | PERCENT CHANGE |
|---|---|---|---|---|---|
| **FEDERAL SOURCES** | | | | | |
| National Institutes of Health | $421,453,708 | 41.5% | $507,485,540 | 44.5% | 20.4% |
| Centers for Disease Control | $12,115,930 | 1.2% | $13,208,585 | 1.2% | 9.0% |
| Centers for Medicare & Medicaid Administration | $2,453,036 | 0.2% | $3,373,731 | 0.3% | 37.5% |
| Health Resources & Services Administration | $1,629,968 | 0.2% | $1,870,868 | 0.2% | 14.8% |
| Substance Abuse and Mental Health Services | $1,016,034 | 0.1% | $917,788 | 0.1% | -9.7% |
| Food and Drug Administration | $127,326 | 0.0% | $526,623 | 0.0% | 313.6% |
| Other HHS | $2,565,595 | 0.3% | $3,449,434 | 0.3% | 34.4% |
| Total Health and Human Services | $441,361,597 | 43.4% | $530,832,569 | 46.6% | 20.3% |
| National Science Foundation | $67,280,046 | 6.6% | $67,331,716 | 5.9% | 0.1% |
| Army | $27,904,142 | 2.7% | $26,854,241 | 2.4% | -3.8% |
| Air Force | $12,336,287 | 1.2% | $14,795,761 | 1.3% | 19.9% |
| Navy | $12,449,204 | 1.2% | $11,470,483 | 1.0% | -7.9% |
| Other | $11,665,293 | 1.1% | $12,850,078 | 1.1% | 10.2% |
| Total Department of Defense | $64,354,926 | 6.3% | $65,970,563 | 5.8% | 2.5% |
| Energy | $21,737,061 | 2.1% | $27,145,008 | 2.4% | 24.9% |
| N.A.S.A. | $16,566,350 | 1.6% | $16,412,115 | 1.4% | -0.9% |
| Transportation | $13,129,204 | 1.3% | $10,456,674 | 0.9% | -20.4% |
| Commerce | $7,429,913 | 0.7% | $9,489,189 | 0.8% | 27.7% |
| Education | $8,047,389 | 0.8% | $8,341,857 | 0.7% | 3.7% |
| Homeland Security | $1,616,685 | 0.2% | $2,519,190 | 0.2% | 55.8% |
| Social Security Administration | $2,636,685 | 0.3% | $2,154,618 | 0.2% | -18.3% |
| Justice | $1,945,515 | 0.2% | $2,020,501 | 0.2% | 3.9% |
| Environmental Protection Agency | $2,111,037 | 0.2% | $1,969,105 | 0.2% | -6.7% |
| Agriculture | $1,345,734 | 0.1% | $1,183,790 | 0.1% | -12.0% |
| Housing and Urban Development | $997,578 | 0.1% | $1,019,494 | 0.1% | 2.2% |
| Nuclear Regulatory Commission | $517,305 | 0.1% | $810,660 | 0.1% | 56.7% |
| Agency for International Development | $329,879 | 0.0% | $586,105 | 0.1% | 77.7% |
| State | $396,083 | 0.0% | $459,906 | 0.0% | 16.1% |
| Interior | $420,379 | 0.0% | $453,218 | 0.0% | 7.8% |
| Smithsonian Institution | $408,256 | 0.0% | $344,443 | 0.0% | -15.6% |
| Library of Congress | $291,910 | 0.0% | $337,528 | 0.0% | 15.6% |
| Museum and Library Services, Institute of | $212,142 | 0.0% | $330,422 | 0.0% | 55.8% |
| Central Intelligence Agency | $386,824 | 0.0% | $255,622 | 0.0% | -33.9% |
| National Endowment for the Humanities | $211,152 | 0.0% | $111,415 | 0.0% | -47.2% |
| National Archives and Records Administration | $16,718 | 0.0% | $67,576 | 0.0% | 304.2% |
| Veterans Affairs | $97,579 | 0.0% | $63,574 | 0.0% | -34.8% |
| Labor | $1,042,181 | 0.1% | $10,400 | 0.0% | -99.0% |
| Other Federal | $28,467 | 0.0% | $260,015 | 0.0% | 813.4% |
| **Total Federal** | **$654,918,596** | **64.4%** | **$750,937,273** | **65.9%** | **14.7%** |
| **NON-FEDERALSPONSORS** | | | | | |
| Industry | $43,317,167 | 4.3% | $39,269,613 | 3.4% | -9.3% |
| Foundations | $23,857,411 | 2.3% | $24,881,157 | 2.2% | 4.3% |
| Public Charities | $12,914,366 | 1.3% | $15,468,081 | 1.4% | 19.8% |
| Other (includes Universities & Gifts) | $9,338,321 | 0.9% | $7,847,686 | 0.7% | -16.0% |
| Trade and Professional Associations | $8,729,822 | 0.9% | $7,508,958 | 0.7% | -14.0% |
| Endowment | $8,391,020 | 0.8% | $7,501,223 | 0.7% | -10.6% |
| State of Michigan & Local Michigan Authorities | $4,555,854 | 0.4% | $3,792,924 | 0.3% | -16.7% |
| Foreign National Governments | $745,072 | 0.1% | $247,479 | 0.0% | -66.8% |
| International Organizations | $139,889 | 0.0% | $245,780 | 0.0% | 75.7% |
| **Total Non-Federal Sponsors** | **$111,988,922** | **11.0%** | **$106,762,901** | **9.4%** | **-4.7%** |
| **Total Sponsored Research** | **$766,907,517** | **75.4%** | **$857,700,174** | **75.3%** | **11.8%** |
| **UNIVERSITY OF MICHIGAN SOURCES** | | | | | |
| **University of Michigan Funds** | **$249,658,394** | **24.6%** | **$281,793,811** | **24.7%** | **12.9%** |
| **TOTAL RESEARCH EXPENDITURES** | **$1,016,565,912** | **100.0%** | **$1,139,493,986** | **100.0%** | **12.1%** |

## Appendix II: U-M Volume of Research Expenditures By University Unit (FY2009-2010)

| UNIT | FY2009 | % of Total | FY2010* | % of Total | 2009-10 Change |
|---|---|---|---|---|---|
| Architecture & Urban Planning, Taubman | $1,371,319 | 0.1% | $833,342 | 0.1% | -39.2% |
| Art and Design | $131,090 | 0.0% | $137,759 | 0.0% | 5.1% |
| Business Ross School of | $9,324,220 | 0.9% | $7,767,901 | 0.7% | -16.7% |
| Dentistry | $16,207,652 | 1.6% | $19,710,470 | 1.7% | 21.6% |
| Education | $12,820,924 | 1.3% | $10,418,751 | 0.9% | -18.7% |
| Engineering | $160,152,222 | 15.8% | $180,098,936 | 15.8% | 12.5% |
| Graduate School, Rackham | $5,099,480 | 0.5% | $5,967,005 | 0.5% | 17.0% |
| Information | $4,171,725 | 0.4% | $3,845,026 | 0.3% | -7.8% |
| Kinesiology | $3,455,873 | 0.3% | $4,304,343 | 0.4% | 24.6% |
| Law | $4,533,395 | 0.4% | $3,429,652 | 0.3% | -24.3% |
| Literature Science, and the Arts | $85,365,727 | 8.4% | $111,307,842 | 9.8% | 30.4% |
| Medical School | $445,782,418 | 43.9% | $498,423,751 | 43.7% | 11.8% |
| Music | $321,465 | 0.0% | $322,199 | 0.0% | 0.2% |
| Natural Resources and the Environment | $12,831,821 | 1.3% | $13,422,397 | 1.2% | 4.6% |
| Nursing | $4,851,284 | 0.5% | $4,877,672 | 0.4% | 0.5% |
| Pharmacy | $7,265,991 | 0.7% | $8,141,865 | 0.7% | 12.1% |
| Public Health | $54,035,097 | 5.3% | $61,197,153 | 5.4% | 13.3% |
| Public Policy, G Ford | $2,449,488 | 0.2% | $2,743,505 | 0.2% | 12.0% |
| Social Work | $4,485,564 | 0.4% | $5,356,536 | 0.5% | 19.4% |
| Institute of Social Research | $97,370,651 | 9.6% | $100,371,693 | 8.8% | 3.1% |
| OVPR Units | $35,353,145 | 3.5% | $31,450,963 | 2.8% | -11.0% |
| Other Units | $26,698,354 | 2.6% | $36,030,471 | 3.2% | 35.0% |
| U-M Dearborn | $6,289,130 | 0.6% | $6,212,081 | 0.5% | -1.2% |
| U-M Flint | $551,901 | 0.1% | $579,255 | 0.1% | 5.0% |
| University Administration | $826,530 | 0.1% | $745,543 | 0.1% | -9.8% |
| Unassignable Services | $14,819,447 | 1.5% | $21,797,875 | 1.9% | 47.1% |
| **Grand Total** | **$1,016,565,913** | **100.0%** | **$1,139,493,986** | **100.0%** | **12.1%** |




**research.umich.edu**

**UMresearch@umich.edu**