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The Honorable James E. Risch
Chairman
The Honorable Benjamin L. Cardin
Ranking Member
Committee on Small Business and Entrepreneurship
United States Senate
The Honorable Steve Chabot
Chairman
The Honorable Nydia M. Velázquez
Ranking Member
Committee on Small Business
House of Representatives

Small Business Innovation Research: Few Agencies Made Awards to Small Businesses Majority-Owned by Multiple Venture Capital Operating Companies, Hedge Funds, or Private Equity Firms

As the United States competes in a global economy, the nation depends on innovation through research and development. To stimulate technological innovation, the Small Business Innovation Development Act of 1982 amended the Small Business Act to, among other things, call for the establishment of the Small Business Innovation Research (SBIR) program.[1] The purposes of the act were to, among other things, stimulate technological innovation, use small businesses to meet federal research and development (R&D) needs, and increase private-sector commercialization innovations derived from federal R&D.

Federal agencies with obligations of $100 million or more for extramural R&D are required to establish an SBIR program.[2] Participating agencies are required to spend a certain percentage of their extramural R&D obligations on their SBIR program each year.[3] In fiscal year 2017, 11 federal agencies participated in the SBIR program, making about 4,800 awards and obligating nearly $2.3 billion through the program. The 11 agencies that currently participate in the

[1]Pub. L. No. 97-219, 96 Stat. 217 (1982). A related program, the Small Business Technology Transfer (STTR) program, was established as a pilot program by the Small Business Technology Transfer Act of 1992, Pub. L. No. 102-564, Tit. II, 106 Stat. 4265 (1992).

[2]Agencies' R&D efforts generally include funding for two types of R&D: intramural and extramural. Intramural R&D is conducted by employees of a federal agency in or through government-owned, government-operated facilities. Extramural R&D is generally conducted by nonfederal employees outside of federal facilities.

[3]For fiscal year 2017, participating agencies were required to spend not less than 3.2 percent of their extramural R&D obligations on their SBIR programs.

program are the Departments of Agriculture, Commerce, Defense (DOD), Education, Energy (DOE), Health and Human Services (HHS), Homeland Security, and Transportation; the Environmental Protection Agency; the National Aeronautics and Space Administration; and the National Science Foundation (NSF).

To qualify for SBIR awards, a small business must meet certain ownership and other eligibility criteria. The SBIR/STTR Reauthorization Act of 2011 (Reauthorization Act) amended the Small Business Act to authorize agencies to allow participation in their SBIR programs by small businesses that are owned in majority part by multiple venture capital operating companies, hedge funds, or private equity firms (investment companies and funds).[4] Upon providing a written determination to the Administrator of the Small Business Administration (SBA)—the agency that oversees the SBIR program—and specified congressional committees, agencies may make SBIR awards to such small businesses.[5] The written determination is to explain how using the authority to allow participation by such small businesses in the SBIR program will: (1) induce additional venture capital, hedge fund, or private equity firm funding for small business innovations; (2) substantially contribute to the mission of the federal agency; (3) demonstrate a need for public research; and (4) otherwise fulfill the capital needs of small business concerns for additional financing for SBIR projects.[6] According to SBA officials, SBA reviews the written determination and, if its review reveals unreasonable aspects of the written determination, SBA follows up with that agency to discuss and resolve the situation.

The Reauthorization Act also included a provision for GAO to conduct a study of the impact of requirements relating to the involvement of investment companies and funds in the SBIR program and submit a report to Congress regarding the study every 3 years.[7] In November 2014, we issued our first report on this issue for fiscal years 2013 and 2014.[8] This is our second report on this issue and updates our previous work by examining, for fiscal years 2015 through 2018, agencies' use of the authority to allow small businesses that are majority-owned by multiple investment companies and funds to participate in the SBIR program.

To address our objective, we reviewed agencies' SBIR data on their use of the authority.[9] We assessed the reliability of the data by examining a sample of source documents, interviewing officials knowledgeable about the data, and reviewing prior assessments of the reliability of the

[4]Pub. L. No. 112-81, Div. E, § 5107(a), 125 Stat. 1822, 1827 (2011) (codified as amended at 15 U.S.C. § 638(dd)). Venture capital companies often invest in businesses that are developing a new product or technology. Venture capital companies hope to profit when the business is eventually sold. Generally, hedge funds and private equity firms are entities that can invest in small businesses and that are privately organized and available only to institutional investors or wealthy individuals. For purposes of this report, we refer to small businesses majority-owned by multiple venture capital operating companies, hedge funds, and private equity firms as majority-owned by multiple investment companies and funds.

[5]15 U.S.C. § 638(dd)(1). The written determination is to be provided not later than 30 days before the date on which such an award is made.

[6]15 U.S.C. § 638(dd)(2).

[7]Pub. L. No. 112-81, Div. E, § 5142, 125 Stat. 1822, 1854 (2011) (codified at 15 U.S.C. § 638a).

[8]GAO, *Small Business Innovation Research: Change in Program Eligibility Has Had Little Impact,* GAO-15-68 (Washington, D.C.: Nov. 20, 2014).

[9]The STTR program is outside the scope of our review because businesses that are majority-owned by multiple investment companies and funds are not eligible to participate in that program.

data. We found the data to be sufficiently reliable for the purpose of providing information on the number of SBIR awards and obligations to small businesses that are majority-owned by multiple investment companies and funds.[10] We also reviewed information in the SBIR program policy directive for using the authority.[11] Additionally, we used a standardized set of questions to interview program managers from the 11 agencies that participate in the SBIR program to obtain data on their use of the authority, as well as their perspectives on the authority. Specifically, we examined whether agencies used the authority or considered using the authority; the reasons agencies had for using or not using the authority; and the information, if any, SBA provided to agencies about using the authority. We also interviewed program officials from SBA because that agency plays a central administrative and oversight role in the SBIR program.

We conducted this performance audit from April 2018 to December 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Each agency that is required to participate in the SBIR program administers its own individual program. At least once a year, each agency participating in the SBIR program solicits proposals for projects in topic areas determined by the agency. The topics are subject to change over time. Each participating agency uses its own process to review proposals and determines which proposals should receive awards through its SBIR program.[12] The SBIR program includes two phases in which federal agencies can make awards to small businesses.[13] In phase I, agencies make awards to small businesses to determine the scientific and technical merit and feasibility of ideas that appear to have commercial potential. Phase I awards generally do not exceed $150,000, and work under Phase I awards generally lasts up to 6 months. In phase II, small businesses with phase I projects that demonstrate scientific and technical merit and feasibility, in addition to commercial potential, may compete for awards of up to generally $1 million to continue the R&D for an additional period, normally not to exceed 2 years.

SBA is responsible for surveying and monitoring the operation of participating agencies' SBIR programs, issuing policy directives, establishing and maintaining electronic databases of program data, and reporting annually to Congress, among other things. According to the SBIR program policy directive, SBA maintains a system that records SBIR award information using

[10]An obligation is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party beyond the control of the United States. Payment may be made immediately or in the future. GAO, *A Glossary of Terms Used in the Federal Budget Process (Supersedes AFMD-2.1.1),* GAO-05-734SP (Washington, D.C.: Sept. 1, 2005).

[11]Small Business Administration, Office of Investment and Innovation, *Small Business Innovation Research (SBIR) Program Policy Directive,* www.sbir.gov (Washington, D.C.: February 24, 2014).

[12]According to the SBIR program policy directive, each participating agency must develop a standardized method for evaluating proposals that considers certain factors, including the technical approach and anticipated agency and commercial benefits that may be derived from the research. The agency must specify its criteria for evaluating proposals in its solicitation.

[13]Where appropriate, the process can involve a third phase for work that derives from, extends, or completes efforts made under prior funding agreements under the SBIR program. Phase III is outside the scope of this report.

data submitted by the agencies and small business applicants. For example, small businesses that are majority-owned by multiple investment companies and funds and that qualify for participation in an agency's SBIR program are to register with SBA on the date that the small business submits an application for an SBIR award and indicate in any SBIR proposal that the small business is registered as majority-owned by multiple investment companies and funds.[14] Additionally, all small businesses must submit a certification at the time of SBIR award and at any other time set forth in the funding agreement in which the applicant states that it meets size, ownership, and other requirements.[15]

To qualify for SBIR awards, small businesses must meet certain SBIR ownership and other eligibility criteria, such as having, together with its affiliates, not more than 500 employees. In addition, prior to the Reauthorization Act, small businesses were required to be at least 51 percent owned or controlled by one or more individuals who were U.S. citizens or permanent resident aliens.[16] Over the SBIR program's first 2 decades, some businesses that were majority-owned by investment companies and funds participated in the SBIR program without any apparent adverse consequence for the program's operation and achievements, according to a study by the National Academy of Sciences.[17] However, in 2003, an SBA administrative law judge held that venture capital operating companies could not be considered "individuals" for the purpose of satisfying the ownership criteria for the SBIR program, so businesses that were majority-owned by such companies were therefore ineligible to receive SBIR awards.[18] Afterwards, Congress considered whether to allow some participation by such companies. In 2011, the Reauthorization Act authorized agencies to make SBIR awards to businesses with majority ownership by multiple investment companies and funds.[19] Awards to such small businesses cannot exceed 25 percent of the funds allocated for the SBIR programs of DOE, NSF, or the National Institutes of Health (NIH) within HHS.[20] All other agencies participating in the SBIR program may not award more than 15 percent of the funds allocated for their SBIR programs to such small businesses.[21]

In November 2014, we found that the change to allow agencies to make awards to small businesses with majority ownership by multiple investment companies and funds had little impact on the program in fiscal years 2013 and 2014.[22] In particular, we found that components of two agencies—NIH and DOE's Advanced Research Projects Agency-Energy (ARPA-E)—

[14] 15 U.S.C. § 638(dd)(3).

[15] SBA, Office of Investment and Innovation, *Small Business Innovation Research (SBIR) Program Policy Directive*, www.sbir.gov (Washington, D.C.: February 24, 2014).

[16] *See* 13 C.F.R. § 121.702(a)(1) (2011). A small business could also be eligible if it was at least 51 percent owned and controlled by another business concern that was itself at least 51 percent owned and controlled by individuals who are U.S. citizens or permanent resident aliens, or if it was a joint venture in which each entity to the venture met either of the 51 percent requirements.

[17] National Academy of Sciences, *Venture Funding and the NIH SBIR Program*, (Washington, D.C.: The National Academies Press, 2009).

[18] Size Appeal of Cognetix, Inc., SBA No. SIZ-4560 (2003).

[19] Pub. L. No. 112-81, § 5107, 125 Stat. 1822, 1827 (2011).

[20] 15 U.S.C. § 638(dd)(1)(A).

[21] 15 U.S.C. § 638(dd)(1)(B).

[22] GAO-15-68.

submitted written determinations for use of the authority in fiscal years 2013 and 2014 and made awards during those years. We found that NIH made 10 awards and obligated $4.5 million using the authority, and ARPA-E made 2 awards and obligated about $3.4 million during that time. Furthermore, we found that SBA could have been missing an opportunity to help agencies better understand the evidence required for the written determination to use the new authority. We recommended that SBA discuss the evidence required for the written determination with participating agencies and, if needed, amend the SBIR policy directive to provide additional guidance. In January 2015, SBA discussed our findings and the written determination requirement with SBIR program managers to clarify the evidence required for the written determination.

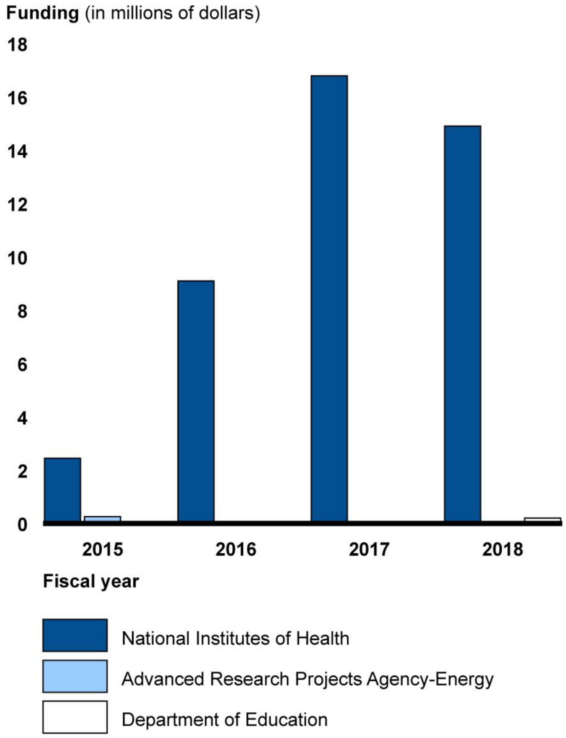
Three Agencies Made SBIR Awards to Small Businesses Majority-Owned by Multiple Investment Companies and Funds, but Most Agencies Have Not Done So

In fiscal years 2015 through 2018, three participating agencies made awards to small businesses majority-owned by multiple investment companies and funds, and one agency submitted a written determination to allow awards to businesses using the authority but did not make any awards to such companies. The other seven participating agencies elected not to use the authority for various reasons.

Three Agencies Made Awards to Small Businesses Majority-Owned by Multiple Investment Companies and Funds in Fiscal Years 2015 through 2018

Three agencies—HHS's NIH, DOE's ARPA-E, and the Department of Education's Institute for Education Sciences—made awards to small businesses majority-owned by multiple investment companies and funds in fiscal years 2015 through 2018. These agencies made a total of 62 awards and obligated $43.6 million to such businesses during this period (see fig. 1). This amount constituted between 0.1 percent and 2.7 percent of these agencies' total obligations for the SBIR program each year.

Figure 1: Amount Obligated for Small Business Innovation Research Program Awards to Small Businesses with Majority Ownership by Multiple Investment Companies and Funds, Fiscal Years 2015 through 2018



Source: GAO analysis of agency data. | GAO-19-205R

Accessible Data for Figure 1: Amount Obligated for Small Business Innovation Research Program Awards to Small Businesses with Majority Ownership by Multiple Investment Companies and Funds, Fiscal Years 2015 through 2018

n/a	in millions of dollars		
Fiscal year	NIH	ARPA-E	Dept. of Education
2015	2.44	0.25	0
2016	9.09	0	0
2017	16.78	0	0
2018	14.90	0	0.2

NIH is the only agency that made awards to small businesses majority-owned by multiple investment companies and funds in all 4 fiscal years in our review. As shown in table 1, NIH made a total of 60 awards in fiscal years 2015 through 2018 and obligated a total of $43.2 million to such small businesses. Not all small businesses majority-owned by multiple investment companies and funds that applied for awards received them. For example, according to NIH data, 13 of 20 such applicants received awards in fiscal year 2016 and 27 of 33 such applicants received awards in fiscal year 2017.

Table 1: National Institutes of Health (NIH) Small Business Innovation Research (SBIR) Program Awards to Small Businesses with Majority Ownership by Multiple Investment Companies and Funds, Fiscal Years 2015 through 2018

Fiscal year	Number of new awards	Dollar amount of awards (dollars in millions)	Awards as a percent of all NIH SBIR award dollars[a]
2015	8	$2.4	0.5%
2016	13	9.1	1.2%
2017	27	16.8	1.9%
2018	12	14.9	1.6%
Total	**60**	**$43.2**	

Source: GAO analysis of NIH data. | GAO-19-205R

[a]The total dollar amount of awards each year includes amounts for new awards and amounts for prior year awards that continued to receive funds.

According to its written determination, one reason that NIH decided to allow small businesses majority-owned by multiple investment companies and funds to participate in its program is that it would increase the chances of promising technologies reaching the marketplace. The written determination states that very few small businesses are capable of commercializing their technologies without private investment funding because of the significant cost needed to take a biomedical product from idea to market. Further, the determination states that small businesses that have been able to attract early funding from investment companies and funds are more likely to succeed in bringing breakthrough public health discoveries to the public.

Using the authority, ARPA-E obligated $250,000 on an existing phase II award in fiscal year 2015. This amount was less than 1 percent of ARPA-E's total SBIR obligations for that fiscal year. Although ARPA-E did not make new awards to such small businesses during fiscal years 2016 through 2018, officials said that their solicitations are open to such small businesses because they are interested in ideas and technology regardless of the source. In its written determination, one reason that ARPA-E states it is using the authority is that as overall venture capital investment in the energy sector has declined, small businesses have had to seek funding from multiple sources and, therefore, officials believe it is likely that an increasing number of potential ARPA-E SBIR applicants will be majority-owned by multiple investment companies and funds.

In May 2018, the Institute of Education Sciences within the Department of Education made an SBIR award for $200,000 to a small business majority-owned by multiple investment companies and funds prior to providing the required determination to SBA and Congress. Agency officials said they misunderstood the requirement to provide such a written determination in advance of an award and instead focused on determining whether making an award to such entities would contribute to their mission and ensuring compliance with the funding limitations for such awards. When they realized the misunderstanding, Department of Education officials contacted SBA officials, who advised them to provide the written determination. The agency submitted a written determination to SBA and Congress in August 2018. SBA officials said they discussed the issue with Education officials and that SBA plans to describe the situation in its annual report to Congress. SBA officials told us SBA believes the Department of Education has complied with the requirement in the Reauthorization Act regarding the maximum funding percentage for awards to small businesses majority-owned by multiple investment companies and funds, and SBA is unaware of any evidence that the Department of Education is carrying out these awards in a manner contrary to its written determination.

According to the Department of Education's written determination, the agency decided to allow small businesses majority-owned by multiple investment companies and funds to participate in the Institute for Education Sciences' SBIR program after receiving inquiries from such small businesses in 2017. The determination states that the agency found that products by such small businesses appear to be used in schools frequently and that access to more venture capital allows the businesses to develop scalable technologies and market them effectively. Further, the determination states that allowing SBIR awards to such small businesses would provide resources to develop new products and conduct research and development and evaluation that would not occur otherwise because investors may be less likely to support new research and development or evaluation efforts.

In addition to the three agencies that have made awards using the authority, one agency—DOD—submitted a written determination to allow awards using the authority for one topic related to satellite imagery included in its solicitation for proposals in fiscal year 2016 for the Defense Advanced Research Projects Agency (DARPA). However, DOD did not make any awards to small businesses with majority ownership by multiple investment companies and funds. Although not required, according to DOD officials, DOD's approach is to submit a written determination to SBA and Congress for individual topics if it intends to allow such small businesses to apply for funding. DOD's written determination indicates that it opened this solicitation related to satellite imagery to such small businesses because the cost to launch satellites had driven many small businesses to raise capital by selling majority equity shares to the venture capital community. DOD's view, stated in its determination, was that providing such small businesses with incentives to gear their research toward DOD-relevant problems would meet a demonstrated need and substantially contribute to DARPA's mission.

<u>Most Agencies Elected Not to Make Awards to Small Businesses Majority-Owned by Multiple Investment Companies and Funds for Various Reasons</u>

Most agencies that participate in the SBIR program elected not to use the authority to open their SBIR programs to small businesses majority-owned by multiple investment companies and funds. Officials from most of the agencies that elected not to use the authority told us they believe that opening their programs to such small businesses would not substantially contribute to the agencies' missions, a determination required to use the authority. According to agency officials, these agencies have not used the authority for a variety of reasons,[23] including the following:

- **Unknown or small level of interest from such businesses.** Officials from three agencies said that they chose not to open their solicitations to small businesses that are majority-owned by multiple investment companies and funds because the level of interest is unknown or they anticipate a small level of interest from such businesses in applying for SBIR awards. Officials from one agency said that they were reaching out to potential applicants at conferences to determine whether there is interest from such small businesses, but they did not yet have enough information to make a decision on whether to open their solicitations to those types of businesses. Officials from the second agency said they would prefer to have more information on the level of interest from these types of businesses. Officials from the third agency said they expect there would be a small number of applicants eligible under the authority because of the specific mission of the agency.
- **Belief that such companies do not need SBIR funds.** Officials from three agencies believed that small businesses majority-owned by multiple investment companies and funds behave more like larger businesses than the small businesses that the SBIR program is designed to help. Officials at one agency said because such companies have more financial backing than most small businesses, the companies' goals may be different than those of most small businesses receiving SBIR awards. Officials at a second agency said such companies are further along than the kind of companies that

[23]Some officials at the seven agencies that did not use the authority provided more than one reason for not using the authority. Therefore, the number of agencies that mentioned these reasons totals more than seven.

need help from the SBIR program. According to officials at a third agency, small businesses with majority ownership by other firms could have millions of dollars, so receiving a couple hundred thousand dollars in government funding from an SBIR award would not make a big difference for the company, and the officials said they preferred to target their SBIR awards elsewhere.

- **Focus of program on early-stage research.** Officials from two agencies indicated that their SBIR programs tend to focus on early-stage research on unproven technologies. Officials said that they have not opened their SBIR program to small businesses with majority ownership by multiple investment companies and funds eligible under the authority because their R&D efforts tend to be in the later stages.
- **Limited funding available for SBIR awards.** As noted previously, the Reauthorization Act limits the amount of an agency's SBIR funds that can be awarded to small businesses with majority ownership by multiple investment companies and funds to 15 percent or 25 percent, depending on the agency. According to officials at three agencies with the 15 percent limit, the limit could result in few awards each year to such businesses. For example, in fiscal year 2017, one agency obligated about $3.7 million for awards under its SBIR program. The Reauthorization Act limits the agency to award not more than 15 percent of its total SBIR program funds to small businesses majority-owned by multiple investment companies and funds, which for fiscal year 2017 would have amounted to about $550,000. According to agency officials, this amount is less than the amount for a combination of two of the agency's phase I and phase II awards. Officials at two agencies raised concerns that it could create an administrative burden in ensuring that the agency did not exceed the maximum percentage. Furthermore, officials from one agency said they have enough qualified applicants that apply for SBIR awards without expanding their solicitations to include those majority-owned by multiple investment companies and funds.
- **Limited information on the results from use of the authority.** Officials at two agencies indicated that information on the success of awards made by agencies that have used the authority could contribute to their respective agencies' decisions on whether to open their solicitations to such small businesses. However among agencies that have used the authority, NIH and ARPA-E officials said it was too early for them to evaluate the impact of the authority.

Agency Comments

We provided a draft of this report to SBA and the 11 agencies that currently participate in the SBIR program. The 12 agencies stated they had no comments.

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We are sending copies of this report to the appropriate congressional committees; the Secretaries of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation; the Administrators of the Small Business Administration, Environmental Protection Agency, and National Aeronautics and Space Administration; the Director of the National Science Foundation; and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or neumannj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report include Hilary Benedict (Assistant Director), Daniel Semick (Analyst in Charge), Patricia Moye, Cynthia Norris, Cynthia Saunders, William Shear, and Richard Tsuhara.

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