MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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Dear Friends of MIT,

The current team took over management of MIT's endowment slightly over fifteen years ago. After 15 years of work, we wanted to offer some reflections. If you would like more information about MIT's investments after reading this, please see our website at www.mitimco.org.

Performance – Our primary long-term goal is to generate sufficient investment returns to maintain the purchasing power of the endowment after inflation and after MIT's annual spending. Assuming inflation will average around 3% over the long-term and MIT's spending rate will average around 5%, we need to earn approximately 8% annually to meet this goal. Fortunately, we were able to return 18.9% annualized over the past five years, 14.5% annualized over the past ten years, and 11.7% annualized over the past fifteen years. We are the first to acknowledge that our returns in recent years are significantly above what can be reasonably expected on a long-term basis and will be subject to the forces of mean reversion.

As another measurement of our performance, we compare our returns to other endowments and to passive benchmark alternatives. Over the past fifteen years, we earned 4.1% per annum more than the average endowment and 4.8% per annum more than a 70% stock/30% bond passive index. Our fifteen-year performance places us in the top 1% of the Cambridge Associates endowment universe.

	5 Years	10 Years	15 Years
MIT Endowment	18.9%	14.5%	11.7%
Cambridge College and University Median	12.7%	8.9%	7.6%
Difference	**6.2%**	**5.6%**	**4.1%**

	5 Years	10 Years	15 Years
MIT Endowment	18.9%	14.5%	11.7%
Global 70/30 Passive Benchmark*	11.2%	8.2%	6.9%
Difference	**7.7%**	**6.3%**	**4.8%**

* 70% MSCI ACWI and 30% Bloomberg Barclays Global Aggregate Bond Index

Note: MIT reports performance annually for fiscal years ending in June. These performance figures are as of June 30, 2021, the most recent reporting period

Where Does the Money Go?

The scale of MIT is hard to conceptualize – over 10,000 students, over 12,000 faculty and staff, 190 buildings spread across a 168 acre campus – and an endowment that has grown to over $27 billion. While $27 billion is obviously a very significant amount of money, the challenges that MIT alumni, faculty, and students are taking on are even more significant – looking for cures to cancer, designing new materials, improving cybersecurity, devising solutions to combat climate change, researching the secrets of the atom, understanding how people learn, improving water and food security, developing better artificial limbs, and exploring outer space, to name a few.

One breakthrough that received press recently was related to SPARC, a collaboration between MIT's Plasma Science and Fusion Center and Commonwealth Fusion Systems. In September, the collaboration announced it had developed magnet technology to overcome perhaps the most significant technological hurdle to fusion-powered energy, opening the way to "an inexhaustible carbon-free source of energy that you can deploy anywhere at any time".[1] The group hopes to have a working fusion reactor by 2025. Only in the face of challenges like these can the scale of MIT make sense – and even feel a bit small. For more information about the work going on at MIT, please visit https://news.mit.edu/.

Being Different

Maintaining an edge in the investment management business is incredibly difficult. The potential for outsized financial rewards draws in innumerable participants and provides ample motivation for intense effort. Early signs of success are usually followed by a flood of capital that crowds out opportunities and drives up prices. Market environments change rapidly, making formerly useful strategies and techniques quickly obsolete. These forces make it very hard for anyone to generate compelling returns over long stretches of time.

While there probably are people who can continually outwork and outsmart the competition, we find the more sustainable route to differentiated results usually involves adopting an approach that others do not pursue. Adopting an industry standard approach leads to viewing the world through a similar lens as most others and to more competition for investment opportunities. Adopting a different approach leads to less crowded playing fields and an opportunity to build strengths where others may not be focused. To offer one brief example, we know of a stock picking firm based in Europe that maintains the discipline of studying a company for at least a year before being willing to purchase it. While this discipline probably sounds bizarrely rigid to most investors and surely results in missed opportunities, it creates an atypical investment process that few others are willing to adopt. (Imagine for a minute all the things you might approach differently if you had a year to work on them.) Not

[1] Dennis Whyte, Director of MIT's Plasma Science and Fusion Center. (https://news.mit.edu/2021/MIT-CFS-major-advance-toward-fusion-energy-0908).

surprisingly, the firm has constructed an unusual portfolio and generated atypical return outcomes.

We have tried to take a different approach in several areas. One example is our investment manager selection process. Historically, we sought out established firms with long track records of success. Such firms were easier to diligence, quick to get internal approval, and much less likely to result in disastrous return outcomes. Unfortunately, these firms also were harder to develop relationships with (due to numerous demands on their time), harder to garner capacity from (due to significant interest from other investors), and often facing headwinds to future investment success (due to larger asset bases and more complicated organizational structures.) As an experiment, we began to target smaller, more off-the-run managers such as brand-new firms, firms started by people who did not have "traditional" backgrounds, firms delving into new arenas, firms with unusual organizational and fund structures, and any other type of firm that did not match the typical institutional playbook.

We discovered that we very much liked the arena of overlooked firms. By definition, there were fewer other investors competing for manager attention and manager capacity, giving us the opportunity to develop deeper, longer duration relationships. These managers also were more likely to be an outlier in some way – perhaps they had been forced to be innovative to survive or perhaps they simply viewed the world differently because they did not have the advantages of being an incumbent. Finally, they usually had less money under management than well-established firms and were hungry to succeed. Over the past five years, we have been the first institutional investor or among the first group of institutional investors in more than 50% of our new relationships.

A second example of a different approach is our flat, generalist endowment investment team structure. Under our old structure, we divided our investment staff into five tiers of titles and four asset class groups. Under our current structure, all investment team members have the same job description ("find interesting investment opportunities"), the same title ("investor"), and are free to work across the entire range of investment types and geographies. While our structure has many similarities to a venture capital partnership, we believe it to be relatively unusual in the institutional investment world.

We believe our structure to be a particular advantage in today's world because it allows for more decentralized decision-making. Formerly, a small and relatively static group of senior people decided how we spent our time and where we invested MIT's capital. Now, a broader group influences the portfolio, allowing new, fresh thinking to permeate our investment choices more quickly, a feature of critical importance today given the significant disruptive innovation happening in the world. This structure also helps enable our focus on off-the-run firms by allowing anyone on the team to organize an internal group to pursue a new investment manager, no matter how unusual it appears at first glance to the rest of us.

A third example is our Cambridge real estate program. While other institutional investors pursue direct investment, we believe we are relatively rare in pursuing it only in such

a targeted geographic niche. We believe this combination offers us the best of both worlds – we are able to work with external managers without them worrying about us making competitive investments ourselves (unless they happen to want to buy real estate within a few blocks of the MIT campus) and, at the same time, we build unusual in-house knowledge and expertise about real estate investment.

Our goal with regard to our direct real estate holdings is not only to seek financial returns but also to attract innovative companies to the Cambridge area and to create a lively interactive environment that benefits local residents, local businesses and the MIT community. If you have not been in Kendall Square recently, you might be surprised by some of the changes. Highlights from our recent development activity include the creation of the MIT job connector (a free workforce development hub for Cambridge residents), a new grocery store, new local restaurants, and the creation of new research space for start-ups through The Engine (www.engine.xyz) and LabCentral (www.labcentral.org). Like all of our investment activity, returns from our direct real estate program support MIT's budget and further the Institute's educational and research goals.

Mistakes

We pay close attention to situations where the interests of the individuals at an organization might diverge from the interests of the organization itself. We focus on these areas because they require effort to counterbalance their negative effects. One example is the open discussion of mistakes. Organizations benefit enormously from candid disclosure of what has gone wrong. Unfortunately, mistakes are always made by an individual (or a group of individuals) who typically suffer loss of stature and diminished organizational confidence when they share all the things they did badly. When faced with such incentives, we wanted to find ways of creating an internal culture in which the sharing of mistakes is not just a habit but also valued and rewarded. One way we have tried to lessen the stigma of sharing mistakes internally is to discuss some of them in open forums, such as this letter.

One mistake we made in recent years was a failure to capitalize sufficiently on co-investments in late-stage venture capital companies. While pattern recognition is one of the great benefits of experience, overreliance on pattern recognition can be a hindrance to good decision making, particularly during periods of secular change. Based on our historical experience, we believed that late stage venture capital co-investments generally were poor risk-reward because that these rounds of fundraising often were priced by investors hoping for a quick gain in the IPO process and such transactions were likely to be pro-cyclical investments made at market peaks in the largest and least attractive of fund investments.

As a result of our pre-conceived notions, we were slow to recognize that the market environment had changed dramatically. The rise of bigger, winner-take-all global technology companies and the tendency of these companies to fund themselves longer in private markets created numerous situations in which MIT's venture capital managers had access to compelling late-stage private investments that they wanted to share with limited partners. Instead of the

negative selection bias we had experienced historically, the late stage venture co-investments offered by our partners in recent years were actually some of the most attractive investment opportunities around. By focusing too much on the historic base rate and not enough on the opportunity set in front of us, we missed opportunities to earn compelling returns for MIT in companies such as AirBnb, JD.com, and Stripe.

We should note that we generally do not consider missing out on successful investments as a mistake. Usually, someone else is better positioned to understand and access opportunities than we are and our lack of involvement is a sign of discipline, not lack of initiative. In many cases, missed opportunities are simply not our money to make. Here, however, we believe this set of missed opportunities falls into the mistake category. As an existing investor with some of the best venture capitalists in the world, we were well-positioned to access these opportunities and failed to do so.

Our Path Forward

On the heels of excellent U.S. stock market performance after the initial Covid shock, we were naturally pre-disposed to worry about the possibility of a down cycle even prior to Russia's invasion of the Ukraine. We did not, however, spend time worrying about potential causes. Possible triggers such as terrorism, political change, natural disasters, war, increased interest rates, the spread of a new disease, changing risk appetites, or an economic slowdown are inherently unpredictable, and time spent trying to predict the nature or timing of such events is time wasted.

Instead, we invest knowing that a downturn will always inevitably come and spend our time thinking about the potential consequences on our portfolio. To prepare for downturns, we have two main lines of defense. Our first line of defense is our manager selection process. Apart from managers that pursue more option-like strategies (such as venture capitalists), we select for absolute return oriented managers who focus first and foremost on finding compelling risk-reward situations, not on outperforming an index. Typically, our managers find margin of safety by purchasing average quality assets at prices well below intrinsic value, by purchasing unusually high-quality assets at reasonable prices, or by purchasing control positions in assets in which they can significantly improve intrinsic value though active management effort. With this focus, these managers have a much greater chance of selecting individual investments that will generate good returns in a wide variety of market environments.

Our second line of defense is a set of exposure guidelines that are designed to promote resilience in the portfolio. Here, we monitor exposures to ensure that the aggregation of individually sound investments does not translate into a portfolio that is overly exposed to specific risk factors. Rather than set arbitrary numerical risk limits (that will by dint of human nature best serve to protect us against the last crisis), we use our exposure data as the basis for regular discussions about what can go wrong and where we should moderate exposures. In

general, our exposure guidelines are designed to ensure we maintain adequate liquidity, avoid over-leverage, and diversify by asset-type, geography, and investment strategy.

One risk that has moved up our list of concerns in recent years is our exposure to profit-tomorrow[2] companies. Profit-tomorrow companies have long been a successful part of MIT's portfolio in the form of venture capital and biotech investments. However, in recent years, the portfolio has become more tilted to such businesses. Our exposure has increased because our managers have identified heightened opportunities in newer companies in arenas such as new drug development, new semiconductor technologies, new climate change fighting efforts, the application of software to the industrial economy, new innovative uses of block-chain technology, the use of data to improve health care outcomes, and much more. At the same time, assets with stable, near-term cash flows such as high quality credit and stabilized real estate appear richly valued based on the low interest rate environment. Companies in our venture capital portfolio also are staying private longer, allowing such exposures to grow larger than they would have in years past.

While this tilt towards profit-tomorrow companies has been the result of rational, bottom-up choices by our manager partners in response to the rise of new high-growth business models, it presents challenges for us. Our profit-tomorrow exposure tends to be volatile as small changes in future expectations for assets with little or no current free cash flows can cause investor estimations of value and asset prices to swing wildly. While these price swings can offer interesting entry and exit points, our portfolio has more mark-to-market volatility risk than in years past, even as we have confidence in the long-term destination of our managers' investments.

We have taken several steps to mitigate this risk. First, and most importantly, we have worked closely with MIT's administration to prepare the Institute's financial frameworks for additional volatility in the endowment value. Second, we have made various portfolio adjustments such as holding cash reserves, sizing illiquid commitments more conservatively, and maintaining a small portfolio of market hedges. Our goal is not to avoid mark-to-market losses (an impossibility given our large holdings of equities and an unwise goal for a long-term investor) but rather to structure the portfolio in such a way that we can avoid selling compelling long term investments at distressed prices to fund short-term capital needs. We suspect that this balancing act between investing capital into new areas of innovation and having the appropriately defensive posture to tolerate a downturn will be one of our main challenges in the years to come.

Another important challenge for us in coming years is to find the best way to align our investment portfolio with MIT's climate goals. Our most important contribution is to help fund the efforts of MIT faculty and students as they invent new approaches and new technologies to

[2] We define a "profit tomorrow" business as a company where the bulk of the value is being derived from cash flows not yet in evidence, while a "profit today" business is a company where the bulk of the value comes from existing cash flows. One of our New York-based managers introduced us to these terms. We prefer these labels over "growth" and "value" because of the sometimes vastly different meanings people in the investment business assign to those terms.

combat climate change. We also will have other opportunities to participate in the needed transition away from fossil fuels in coming years. To that end, we have created long-term targets for a net-zero carbon portfolio and are exploring various ways of reaching that goal. To ensure we make near-term progress, we have engaged in a process to offset carbon emissions from MIT's Volpe real estate development (https://volpe.mit.edu/). We also continue our work with Climate Action 100+ to engage with companies to promote the energy transition. For more information on our ESG investment framework, please see https://mitimco.org/mits-environmental-social-and-governance-esg-investment-framework/.

Some people in the MIT community have suggested that MIT divest from fossil fuel companies. We prefer the net-zero approach instead for several reasons. First, it encompasses the whole energy system rather than simply targeting the producers of fossil fuels. Second, we believe divestment could lead to fossil fuel holdings moving into the hands of investors who do not care about climate issues and thereby preclude the opportunity for constructive engagement with companies about their climate policies. Third, the net-zero approach acknowledges the need for an energy transition in which fossil fuel use is phased out as rapidly as possible, rather than assuming we can shut off fossil fuel investment today without any unintended impact on life's necessities such as heat, electricity, and the production of agricultural fertilizer products.

A Request for Help

We are very grateful to work at MIT. One particularly nice part of our job is that MIT faculty members have been incredibly generous with their time over pizza lunches and zoom calls. In recent years, we have learned about their research in artificial intelligence, gravity waves, innovation, refugee education, and workplace diversity. Not only are these presentations fascinating and educational, they remind us of the small part we play in supporting some of the amazing work being pursued here. We also benefit in many other ways from the support provided by the MIT community. MIT alumni have fielded due diligence calls and introduced us to investment ideas all over the world. MIT students have interned with us and made valuable contributions. The MIT administration and MIT's investment committee provide invaluable oversight and advice.

We wanted to ask the MIT community for help in two additional ways. First, we would like introductions to any exceptional but overlooked investment manager you might know. We routinely engage with brand-new firms and even people just thinking about founding a firm. If you have ideas, please reach out to us at partnerwithMIT@mitimco.org. [3]

Second, we are interested in selectively adding to staff here. If you know anyone who might find this work appealing, please ask them to visit https://mitimco.org/join. We have been particularly pleased in recent years by the pipeline of potential employees who have

[3] We should note that we are only able to partner with a small handful of new firms each year and we pass on many great opportunities that we fail to recognize or that we lack the ability to underwrite.

come through internship programs such as Girls Who Invest (www.girlswhoinvest.org) and CREST (https://crestinternship.com/). We also recently partnered with the UNCF Lighted Pathways Program to further improve the pipeline of diverse talent in the investment management industry. We encourage applications to these programs (if you are a student) and participation in these programs (if you are an employer.)

With sincere thanks from all of us,

The MIT Investment Management Company