
FIXED INCOME & CRYPTOCURRENCY COMPENDIUM

August 2020

Featured Companies

Weyerhaeuser Company (WY)
PotlatchDeltic Corporation (PCH)
CatchMark Timber Trust, Inc. (CTT)
Acadian Timber Corporation (AND CN)



*Exclusive Marketers of
The Fixed Income Contrarian Report*

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Murray's Musings

CRYPTOCURRENCY AND CREDIT CARDS

In order to make cryptocurrency generally available to the global population, a means is required that will enable transfer and exchange. This has not developed yet because even the largest user of cryptocurrency lacks the means to create such a universal exchange system. It is not merely a matter of money. A de novo system would require years to construct, and even if it were to be completed, universal acceptance would be highly questionable.

An ideal solution is the use of an existing universally accepted transfer and exchange system for fiat (government-issued) currency. Credit cards qualify as such an ideal solution since they are already universally accepted. Towards this end, Coinbase Inc. obtained permission from Visa Inc. (V) in February to issue a Visa debit card that can spend the Coinbase bitcoin balance. Merchants need not accept bitcoin; the Coinbase bitcoin balance is effectively a U.S. dollar balance, since Coinbase converts crypto to U.S. dollars at time of purchase. It is not exactly the same as having a merchant directly accept bitcoin, but in practice, the bitcoin can be spent.

The relationship of the Swiss company Eidoo with Visa is another step closer to the acceptance of cryptocurrency. In this case, the company introduced a Visa debit card that uses regulated stablecoins for the crypto-to-fiat conversion. Stablecoins are digital currencies tied to some benchmark or combination of other assets or currencies that is sufficiently non-volatile in price so that the stablecoin can function as a practical medium of exchange. Perhaps the best known one, at least for a time, was Facebook's Libra, which was to be indexed to a basket of short-term government securities and bank deposits denominated in relatively stable currencies like the euro and U.S. dollar. Eidoo is designed to facilitate conversion, at the point of sale with a merchant, of bitcoin and ether into European currencies like the euro, the British pound, or the Swiss franc, so the conversion of the crypto creates a spendable Visa balance that can be debited for each transaction.

Very slowly, the cryptocurrency system is being integrated with the existing fiat currency payment system. Examples of these de facto crypto debit cards are Plutus, Wirex, Monolith, Revolut, Cryptopay, Bitcard, Uquid, 2gether, Coinbase, BitPay, Paycent, Crypterium, and the MCO Visa (formerly the Monaco Card).

Many of these cards have expanded beyond bitcoin. For instance, Paycent, which is based in Singapore, uses Litecoin, ether, Dash, and XRP in addition to bitcoin. The BitPay Card is a Mastercard; crypto can be loaded on it and converted into a fiat currency debit balance. Naturally, if one can convert crypto into a spendable fiat debit balance, it is possible to

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reverse the process and use a debit balance to purchase crypto. For example, CoinFlip Solutions, Inc., one of the leading operators of cryptocurrency ATMs, allows customers to use credit or debit cards denominated in fiat to purchase cryptocurrency.

According to the firm Cryptowisser, there are now at least 30 Visa and Mastercard debit cards from which to choose if one wishes to maintain a crypto balance in the existing accepted fiat currency network. However, even this list does not completely cover all the ways that fiat transfer and exchange methods are incorporating crypto. Crypto is also entering the digital wallet space of Apple and Google. A company known as Swipe sells a crypto banking application that gives access to 30 cryptocurrencies via a digital wallet. Balances can be transferred between banks using a Swift wire transfer or even via the Single Euro Payments Area (SEPA).

SEPA contains all members of the European Union plus the United Kingdom after Brexit, Iceland, Lichtenstein, Norway, Switzerland, Monaco, and Vatican City. The accepted transfer medium is the euro, but in practice, crypto is simply converted to euro for transfer, and upon receipt the recipient can convert to a wide assortment of possible cryptocurrencies. SEPA is important because the European financial institutions stand behind it. These institutions are the European Commission, the European Central Bank, the European Banking Federation, and the European Payments Council. The SEPA system is operative 24 hours a day, 7 days a week, just like the cryptocurrency market.

As one can clearly see, the credit/debit card network applied to cryptocurrency is both a custody system and a payment transfer system. Custody of funds plus the ability to transfer funds is a rudimentary banking system, although it is not a bank, properly speaking. For most people, it is a network that possesses the faculties of a bank.

If one were to accept that these rudiments of a bank constitute a de facto banking system, then it logically follows that what is developing is a banking system that operates outside of the formal banking system. Since, the traditional banking system is presently conducted within the context of zero interest monetary policies by the world's major central banks, then what is developing is a banking system that is operating outside the context of the current monetary policy and influence of the central bank.

The zero-interest monetary policy has created a nearly flat yield curve throughout most of the world. Within this system, it is difficult to earn an adequate spread on an otherwise good lending client. One could surely earn a larger spread on less creditworthy borrowers, but that is the pathway to default and loan loss. It is not a viable pathway for a conventional bank. Moreover, given zero interest as a permanent feature of banking, there is no incentive for deposit clients to retain funds in a bank, and the danger is that it will be difficult to attract funding.

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The emerging cryptocurrency custody transfer system might be called an informal banking system that can use the traditional bank infrastructure but is not bound by the central bank monetary policy. Under these circumstances, it would be a logical development for a market-based interest rate structure to evolve.

Indeed, this has already begun to happen. For example, at BlockFi.com, it is possible to earn interest on cryptocurrency balances denominated in bitcoin, ether, and Litecoin. The only reason for paying interest on crypto is that the institution in question wishes to lend crypto. There are already a variety of possible cryptocurrency-based loans. The most simplistic is the case in which a holder of crypto would like to borrow some fiat money against the crypto collateral purchased at much lower prices than is currently the case. Fiat money can always be generated by simply selling some cryptocurrency, but that would be a taxable event if that crypto has appreciated. It is arguably more tax efficient to hold the crypto as collateral against a fiat currency loan. If one believes that the crypto will appreciate against the fiat borrowed, it is also reasonable to assert that the earnings from the crypto collateral might comfortably exceed the value of the fiat loan, and in this sense, the fiat loan ultimately extinguishes itself.

There are other reasons, too, for a crypto loan market to develop. Suppose a given investor were to believe that crypto will appreciate against fiat. One might simply convert \$1,000 to bitcoin in such a case, and the worst possible scenario is that the bitcoin would be worthless. In this instance, the loan loss would be \$1,000 plus any lost interest on the \$1,000 sum; as a practical matter, lately that interest amount would be close to zero.

Let us say, as an alternative, one were to borrow 0.1078 bitcoin, the bitcoin equivalent of \$1,000 at the time of this writing. Let us fix the interest rate at 8% at the time of loan inception, and the term of the loan is one year. At loan maturity, one would owe interest amounting to $8\% \times 0.1078$ bitcoin or 0.0086 bitcoin. And, of course, the borrower would return the 0.1078 bitcoin.

If bitcoin were to decline by 90%, the interest, being that this is a bitcoin-denominated loan, would be paid in bitcoin, and that would cost only about \$8 to purchase for a period of one year. That \$8 figure is derived by calculating 8% on a \$1,000 loan balance which, again, being denominated in bitcoin, declined by 90%. Really, it is not a \$1,000 balance; perhaps it should be referenced as a btc1,000 balance. Therefore, one would be paying 8% *in bitcoin*, and when the USD-based borrower pays that interest, it would only cost about \$8 upon conversion from USD to btc. If bitcoin were not to decline, the interest expense would be \$80, or simply 8% on the \$1,000 loan.

On the other hand, bitcoin could instead appreciate by 90%. Let us vary the example, somewhat. In this instance, the borrower does hold 0.1078 bitcoin during the term of the loan, but the original collateral for the loan would be fixed at \$1,000. If the borrower

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could, in turn, re-lend the bitcoin at 8% to another USD-denominated borrower, but on a mark-to-market basis, it might bring in \$80 plus 90% appreciation on the interest owed, for a total of \$152 of interest received in U.S. dollars. The interest to be received by the owner of the bitcoin at loan maturity would be the \$80 fixed sum, which would be owed by the 1st borrower of the bitcoin. At maturity, the 0.1078 bitcoin would be returned to the original lender. The profit to the re-lender would be the \$152 interest received from the 2nd borrower minus the \$80 on the fixed loan, or \$72. In other words, the re-lender would have held \$1,000 collateral for a bitcoin loan and that would be \$72 or 7.2% on the U.S. dollar balance.

Let us make matters more interesting and assume that a borrower is required to post only \$500 collateral in U.S. dollars for an original one-year term loan on \$1,000 worth of bitcoin. In success mode, the profit of \$72 would be based on a \$500 collateral sum, so that the return is far more alluring.

Why might a lender require only \$500 of collateral instead of \$1,000? A lender might do this if the institution or individual is confident that the original bitcoin is safely invested, earning a floating rate as opposed to a fixed rate paid by the borrower. The volatility of bitcoin makes various profit scenarios possible in such a transaction. It is, in effect, a fixed versus floating rate swap.

In any event, given that central banks have stabilized rates at low levels and appear to have no intention of increasing interest rates, the conventional banking or interest rate differentials have ceased to exist. The result is that conventional profit on the customary banking transactions are most difficult to achieve.

The system of evolving transactional possibilities is known as DeFi in cryptocurrency parlance. DeFi is vernacular for decentralized finance. Essentially, it entails the recreation of much of the existing set of financial transaction possibilities outside of the controls and constraints imposed by the central banking system.

DeFi is not merely cryptocurrency in the conventional sense. Stablecoins, for instance, which might be tied or pegged to the U.S. dollar, are basically digital fiat currencies that act like money market funds. The difference is that they are not within the reach of the central banking system, so that in some cases one can earn a reasonable rate of interest.

Naturally, stablecoins come without many of the safeguards of the traditional banking system. It is surely possible that, based on open source code, the stablecoin blockchain or custody system could be penetrated and money stolen. Another possibility is that even a stablecoin, despite the intent of its design, can be used for speculative purposes. For instance, the Dai stablecoin is frequently used by holders to purchase ether on leverage. Dai is controlled by another coin known as MKR. The holders of this latter coin vote to set

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the Dai interest rate. One might call this a form of decentralized central banking in which speculation is actually encouraged to some degree. This sort of activity could have negative consequences one day, but in the meantime it is a profitable banking transaction of a sort.

The concept of DeFi, decentralized finance, has entailed the evolution of the “decentralized application,” dApp in cryptocurrency parlance. The salient characteristic of dApp is that the software is not managed by an institution. This can be a “smart contract” that, in practice, will run itself with no human intervention once it is deployed to the blockchain of the cryptocurrency in question.

A dApp is based on open source code that is visible to anyone who cares to examine the code. It is also permissionless in the sense that anyone can create a dApp and anyone can use one. It is this development that created the equivalent of a banking system outside the fabric and structure of the conventional banking system.

An example is a dApp known as Compound. It is a blockchain-based borrowing and lending application. One can lend crypto and earn interest. One can deposit crypto and borrow against the balance used as collateral for a loan. The dApp has the equivalent of a matching engine that adjusts interest rates based upon the supply and demand for loans. This is not the only conventional banking dApp. Dharma, dYdX, and LoanScan are other examples.

The central point is that a significant change is commencing because of the crypto evolution. At one time, the universal belief was that the cryptocurrency world would develop its own applications, and transfer and payments system. This process is continuing, as one can readily see by the development of a wide variety of so-called dApps. Yet, there is a separate development occurring as well. If the banking system were to completely isolate itself from crypto, the risk is the evolution of a parallel banking system that might eventually completely displace the conventional banking system based upon fiat currencies that are continually losing purchasing power due to excess money creation. Therefore, the evolution of cryptocurrency-oriented debit cards is actually the opening of the conventional existing payment and transfer system to crypto. It should greatly accelerate the universal adoption of cryptocurrency.

Industry Thoughts

COMMODITY-BASED ROYALTY TRUSTS IN A FIXED INCOME PORTFOLIO

The contemporary fixed income investor must contend with the following two circumstances. First, the historical return for the past 10 years is not high in absolute terms, even with the historically unprecedented monetary stimulus by central banks. Using the iShares Core U.S. Aggregate Bond ETF (AGG) as a proxy for the fixed income market, the annualized return for the 10-year period ended June 30, 2020 is 3.73%. The second reality is that the current yield to maturity of the index is 1.12%. In other words, if interest rates do not increase, the rate of return for the next 10 years is the current yield to maturity. This is less than the benign-case inflation projection of 2% per annum.

None of the monetary stimulus would have been possible without a 10-year period of decline in commodity prices. Ten years ago, crude oil traded at almost \$80 a barrel and now it is approximately \$40 a barrel. Natural gas was \$4.50 per million BTU 10 years ago and now it is about \$1.80 per million BTU. Wheat traded at over \$7 per bushel and now it is \$5.35 per bushel. Lean hogs are down by about 50%, uranium is down by 20%, coffee is down by roughly 35%, sugar is down by 30%, copper is more or less unchanged, and cocoa is down about 30%—all in the past decade.

This is starting to change. Oddly enough, the first commodity that exhibited a significant price increase is lumber. The price per 1,000 board feet has increased vis-à-vis about 10 years ago from about \$2 to \$5.33. Almost all of that increase occurred in the past 60 days. This certainly gives the bond investor some understanding of the volatility as well as the rapidity of commodity price movements. It is particularly strange in the case of lumber, since one might have been inclined to think that COVID-19 would have a negative impact upon construction and, therefore, upon lumber.

No one seems to know why lumber prices are increasing. Some theorize that many workers are unemployed as a result of the current pandemic and these people are using the time to undertake home repair projects. This seems logical, because remodeling demand constitutes a significant proportion of lumber demand. Yet, there is no hard data upon which to base such a theory.

A more empirically-grounded theory is that the new restrictions by the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) are having the impact of permanently reducing supply. Both of these international, non-profit organizations are oriented towards the development of sustainable forest management practices. This amounts to reducing the annual cut, or tree harvest. Many corporations will not purchase—or even cannot purchase—lumber that is not FSC or PEFC certified.

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Consequently, each year there has been an increase in the world forest land that has FSC and PEFC double certification, which means certification from both organizations. The following table produced by both organizations shows the increase in hectares that are certified.

Table 1: FSC and PEFC Double Certification

	<u>Hectares</u> <i>(millions)</i>
End 2016	70.144
Mid 2017	71.067
Mid 2018	86.656
Mid 2019	92.518

Source: FSC & PEFC

Double certification now exists in 33 countries, and in terms of single certification, meaning one or the other, about 430 million hectares are now covered. There are other forestry certification organizations, as well.

Because the lumber price increases are so recent, none of the timber real estate investment trusts (REITs) have reacted in price. One can only presume, perhaps very incorrectly, that much of the timber REIT ownership occurs within the context of generalized REIT indexes or at least REIT funds. These funds have exhibited a series of issues since the start of the COVID-19 pandemic, especially an exceedingly low lease renewal rate due to the uncertainty of local health authorities' restrictions on property use going forward.

The four primary timber REITs in the U.S. are:

Table 2: Four Major Timbers REITS

	<u>Market Capitalization</u> <i>(billions)</i>	<u>Yield</u>
WY Weyerhaeuser Company	\$17.68	5.74%
RYN Rayonier Inc.	3.50	4.20%
PCH PotlatchDeltic Corporation	2.65	4.04%
CTT CatchMark Timber Trust Inc.	0.448	5.87%

Source: Bloomberg, week of July 13, 2020

These REITs yield anywhere from the low 4% to the high 5%.

Of these four stocks, only Weyerhaeuser is in the S&P 500, at a 6 basis-point weight. The S&P 500 has essentially no positive exposure to lumber prices. There is, on the other hand, a great deal of negative exposure, because many S&P 500 companies might use large

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amounts of lumber in their businesses if for no other reason than construction and renovation of facilities.

It might be rather unorthodox, but a 1% position in Weyerhaeuser would raise the yield of a bond index portfolio by 5 basis points and introduces a different kind of risk than the convexity risk that is a property of every modern bond portfolio.

Facts & Figures

SUPPLY AND DEMAND IN LUMBER AND TIMBER LANDS

According to Statista, the total annual value of the U.S. industry shipments of wood products is \$283.7 billion. This is the sum if one were to add up all the wood of whatever type anyone buys. Note that the probable annual revenue of Microsoft Corp. (MSFT) for the fiscal year ended June 2020, is about \$143 billion. Microsoft, of course, is a global corporation and, in this case, we are comparing it to a mere domestic U.S. industry. The importance of the comparison will become clear shortly.

The price of 1,000 board feet of lumber was about \$221 from late 2015 to early 2016. It increased dramatically to over \$600 per 1,000 board feet in early 2018, and the price rapidly collapsed to slightly in excess of \$300 per 1,000 board feet during that same year. Some modest recovery was realized afterwards.

The next serious decline occurred in March 2020 with the issues arising from the current pandemic. The price per 1,000-board feet understandably declined to about \$230 in early April.

Since that date, the price has increased to \$539 per 1,000 cubic board feet. If this becomes a permanent price increase, it will cost U.S. consumers over \$300 billion. That should be very significant as a vector for a dramatic enhancement of an S&P 500 industry sector's earnings and valuation. Yet, the weight of forest products in the S&P 500, in the incarnation of Weyerhaeuser, is only 6 basis points, Microsoft is a 622-basis-point weight. The S&P 500 is supposed to represent the U.S. economy, not the global economy.

Statista reports that the certified forest area in North America is 49% of total area, though this statistic can vary, depending upon the reporting organization and the definitions employed. This means that the industry has a reduced capacity to respond to the extraordinary demand for lumber, because roughly one-half of all forest land has adopted sustainable cutting practices, and more adopt it every month. The proportion of the industry that is certified—and certification can apply both to entities that own timberland and to companies that engage in logging—will almost certainly increase, since buyers are under great pressure to purchase only certified lumber, and in some cases, companies are legally compelled to do so .

The country with the largest forest area in the world, according to Statista, is Russia, with 815 million hectares. Even a fair amount in Russia is now certified. Other large forest nations are Brazil, Canada, and the U.S.

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Table 3: Largest Forest Nations

	<u>Hectares</u> <i>(millions)</i>
Russia	815
Brazil	487
Canada	347
United States	310

Source: Statista

Statista reports that 31% of total world forest area is now certified. These statistics should be considered in the context of political and social changes that are now in process with respect to environmental sustainability. China and India alone have 2.8 billion people, and a higher standard of living on a sustainable basis that includes eliminating plastics will involve the increased use of paper and wood products. Certainly, paper as an alternative to plastic for packaging will be encouraged and quite possibly required by much of the world. One would think that even just a few nations in the world moving away from plastic towards wood fiber-based packaging at a time when the wood harvest is being reduced constitutes a possible source of inflation, at least in lumber.

Science.howstuffworks.com, an objective and generally reliable source of data on many aspects of applied technology, reports the following.

- 1) Manufacturing paper actually produces 80% more greenhouse gases than the manufacture of plastics. This is even before any allowance is made for the CO₂ that would be absorbed by a tree that actually survives.
- 2) The manufacturer of a given quantity of paper requires 4x as much energy as the manufacturer of plastic for a given unit of output.
- 3) The Environmental Protection Administration asserts that in a landfill, paper decomposes only modestly more rapidly than plastic.

Since paper obviously creates environmental problems, a substance known as paptic has been invented. It is paper product made from wood fiber originating from a sustainably managed forest with an FSC certification, but has foldability and strength characteristics that allow it to be reused many times in place of various types of plastic bags and other plastic packaging, and it is recyclable.

It would seem that the long-term wood products trend is towards lower production (that is to say supply) but not necessarily lower demand.

Featured Companies

INTRODUCTION: BONDS AND TIMBER REITS

There is precedent for a sudden, enigmatic increase in lumber prices. The price increase as well as the subsequent price decrease is rarely explained. In all likelihood, the current sudden jump in lumber prices will give rise to a sudden price decrease. If it does not happen, that would be an inflationary problem, which is to say, a problem for bonds.

The typical timber REIT yields four times the Core Aggregate Bond Index. Paper is ubiquitous as a form of product packaging. An increase in lumber prices must give rise to an increase in the cost of packaging, which in turn, will impact a virtually infinite array of products.

Therefore, if a bond investor were to substitute a 1% position in timber REITs for an identical position in bonds, it would be a diversifying action. The timber REITs declined by about 20% to 25% at the onset of the COVID-19 crisis and never recovered much. The stocks reflect diminished demand—and therefore diminished price—at the moment when the reality seems to be different.

Of course, the typical bond investor will not exchange 1% of a bond portfolio for 1% in timber REITs because of the formalization of lines of responsibility in asset allocation. However, that would be a yield-enhancing, diversifying move.

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WEYERHAEUSER COMPANY (WY)

Weyerhaeuser Co. (WY) has a \$17.68 billion market capitalization, and the shares yield 5.74%.¹ It controls 11.5 million acres of timberland in the United States and manages an additional 14 million acres in Canada in accordance with long term contracts. In the U.S., the timberland ownership amounts to 10.8 million acres. The timber harvest, as well as the inventory, is weighted heavily towards Douglas fir cedar and southern yellow pine. This is because of the weather and growing characteristics of the areas in which the property is located: Oregon, Washington, Arkansas, Louisiana, and Mississippi.

This is important because demand for wood varies by species, with some species more suitable for some purposes than others. Similarly, age of wood is important. In the Weyerhaeuser Oregon and Washington holdings, the average age of harvested timber is 50 years, hence, 2% of the timber is harvested yearly. On the other hand, hardwood and conifer are harvested at a more advanced 63-year age. The Weyerhaeuser practice is to harvest about 1% of these species each year.

As should be apparent, timber has much of the characteristic of a zero-coupon bond. When a seedling is planted, it has minimal value. As a seedling grows into a mature tree, its market value increases in a regular and predictable manner. In 2019, for example, a Douglas fir log sold at an average of \$665 and a southern pine log in the same year sold at \$328.

The lumber futures price curve is in backwardation at the current time. This means lumber prices are expected to decline. However, even the July 2021 futures, a year from now, trade at \$420.90 for 1,000 board feet. It is worthy of note that as late as 2010, lumber traded in the same range as it did in 1980, when the average price per 1,000 board feet was \$225. They had not increased in 30 years. From 2010, onward—at least point-to-point—lumber prices have been rising very gradually, as sustainable forestry practice becomes more widespread.

The Weyerhaeuser REIT has \$6.3 billion of long-term debt and another \$1 billion of short-term debt, as against \$1.45 billion of balance sheet cash. Shareholders' equity is \$8 billion and it is devoid of any intangibles. Most of the corporate cash flow is paid out in the form of dividends, with the exception of expenditures related to reforestation projects.

The REIT is far less dangerous than a high-yield bond. Right now, a typical high-yield bond might have a yield to maturity of 5.8%. A significant portion of a high-yield portfolio will come from B-rated or even CCC-rated credit, and there is always the risk of default. Such a portfolio, as a whole, has both individual credit default risk as well as the portfolio

¹ Week of July 13, 2020

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spread widening risk. A timber REIT injects a new and different element into the bond portfolio: the possibility of income increase.

The current yield in Weyerhaeuser is based upon a much lower share price. The price of Weyerhaeuser has remained unchanged since lumber prices increased, because the market presumes that the price of lumber will quickly normalize. If it does not, Weyerhaeuser's dividend payment will eventually be much higher.

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POTLATCHDELTAIC CORPORATION (PCH)

PotlatchDeltic Corporation (PCH) has a \$2.65 billion market capitalization and yields 4.04%.² It became an REIT in 2006, and it was expanded in 2018 with the merger of Deltic Timber into Potlatch. Its paper manufacturing operations, Clearwater Paper Corp. (CLW), were separated from the company via a spin-off in late 2008.

Potlatch's business is almost entirely the management of 1.9 million acres of timberland. However, the company still owns six sawmills, so one might say an industrial component still exists. The company owns the following forested land.

Table 4: PotlatchDeltic Forests

<u>Acres</u>	<u>Tree species</u>	<u>State</u>
628,000	Primarily Douglas fir, red cedar	Idaho
106,000	Primary pine, aspen	Minnesota
929,000	Primarily Southern pine	Arkansas
96,000	Southern pine	Mississippi
92,000	Southern pine	Alabama
6,000	Southern pine	Louisiana

Source: Company filings

About 6 million tons of timber should be harvested in 2020. If that occurs, it would be an increase of about 7.4% versus the prior year. That degree of growth is very unusual in the current environment, which is why PotlatchDeltic yields less than Weyerhaeuser. It is perceived to have the ability to achieve modest growth for a period of time. That makes no allowance for a potential increase in lumber prices, which could dramatically increase the dividend.

It should be observed that timber REITs do not generally insure against timber losses due to fire, weather, disease of trees, and even new regulations. All of these factors could reduce cash flow and therefore dividends, even before consideration of the other factors clearly affecting the industry, such as weakness in the economy.

The reason for undertaking such an investment despite the self-evident risks is that the bond index yields only 1.12% and bears with it the presumed risk of a 2% annual inflation rate as well as the risk of even greater inflation, such that the debasement of the principal value of a bond portfolio is a certainty. In contrast, PotlatchDeltic's 4% yield and a presumed 2% annual inflation rate should lead to timberland appreciating at the rate of inflation in the fullness of time, and the income produced should grow at least at the same rate.

² Week of July 13, 2020

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The presumptive rate of return, therefore, is 6%, meaning, 4% yield with a 2% inflation rate, versus the 1.12% return in the bond portfolio. However, lumber prices have already increased substantially, and even if those prices stay where they are now, the dividend—the cash flow that must be paid out—could be very substantial.

The PotlatchDeltic balance sheet holds \$710 million of long-term debt and \$46 million of short-term debt against \$1.149 billion of shareholders' equity and \$79 million of cash. The debt should gradually be debased over time by the same factors that will serve to debase the purchasing power of the typical bond index.

PotlatchDeltic is not only the beneficiary of inflation, in a direct operating business sense, but also through the diminution of the value of its debt via inflation, such that the REIT is a de facto short position in debt. That has value, in and of itself, if added to a bond portfolio. If inflation ever accelerates due to excessive money creation, or if timber prices increase because of the forestland certification movement, this security will probably significantly outperform bonds and provide a much higher yield.

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CATCHMARK TIMBER TRUST, INC. (CTT)

CatchMark Timber Trust, Inc. (CTT) has a \$448 million market capitalization yielding 5.87%.³ CatchMark Timber is somewhat different than the other timber REITs. Like the others, it owns timberland, in this case, 435,500 acres located primarily in the southern United States. However, the company controls over 1.1 million additional acres via a number of joint ventures, and it also buys and sells timberland for its own account, meaning, it trades. CatchMark also manages timber assets for institutional investors so that, in a sense, it is partially a money management firm. About 11% of revenue is derived from this segment and that figure is growing rapidly. About two years ago, revenue from this segment was nearly zero.

That provides an element of optionality in CatchMark beyond that of other REITs in the timber arena. Many institutional investors lack any exposure to timber as an alternative investment. In view of the sustainability features being introduced into most timber management in the world and the increasing regularity of the timber harvest or cut, the cash flow from timber as an alternative investment is becoming more predictable.

Timber asset management could conceivably significantly expand the amount of capital available at institutions to deploy in search of cash flow at higher returns than the meager and insignificant cash flow to be earned by bonds. In success mode, it is readily conceivable that such a business could be spun off to the public at a fairly high valuation.

There are two somewhat undesirable aspects of CatchMark Timber. The first problem is that the continued trading of timberland reestablishes an ever higher tax basis for the property. This is very different from most timber trusts that maintain a low basis. As an accounting convention, the company must charge depletion allowances to newly purchased timberland. In practice, timber is a renewable resource that does not actually deplete, but the depletion charges make the company seem as if it is not profitable. In reality, the company has positive free cash flow. Dividends are paid from free cash flow. However, shareholders' equity declines as an accounting consequence.

CatchMark thus appears leveraged, with only \$156 million of shareholders' equity financed by \$432 million of notes payable and lines of credit. In the first quarter of 2020, the company did repay \$20 million of debt. If CatchMark were able to reduce its formal leverage, it would most likely receive a higher valuation. This might actually happen if the company could create a publicly traded vehicle for its timber asset management business.

On the other hand, if this business expands within the context of CatchMark, it could produce quite substantial cash flows with no cash reinvestment requirement, since the

³ Week of July 13, 2020

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timber assets are owned by institutional investors and they are responsible for any necessary capital expenditures.

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ACADIAN TIMBER CORP. (ADN CN)

Acadian Timber has a USD176 million market capitalization and it yields 8.24%.⁴ It holds 761,000 freehold acres of timberland in New Brunswick, Canada as well as another 300,000 freehold timberland acres in Maine, U.S. It also provides services to about 1.3 million additional acres of provincial timberland in New Brunswick.

This is the only one of the timber firms that reinvests some cash flow in expanding the business, although the payout ratio is still 74%. As a consequence, book value per share is generally increasing, although not at a particularly alluring rate. The shares also trade at a 30% discount to book value. The company probably could be liquidated at a premium to book value. One reason for the discount to book value and the relatively high yield is that the company appears to be unprofitable at the moment, when this is not the case. Acadian Timber must continually adjust the exchange rate value of some debt based on changes in the U.S./Canadian dollar ratio. In actuality, the shares are trading right now for about 12x free cash flow.

For many years, this company was 45% owned by Brookfield Asset Management Inc. (BAM). The presumption was that Brookfield would eventually integrate timber into its large private equity business. Brookfield is probably the largest private equity manager in the world and it specializes in tangible assets such as real estate, power plants, and other infrastructure projects. Although considerable funds can be invested in timberlands in principle, these would be relatively small sums in comparison with the scale of investment that is possible in infrastructure. Consequently, in August 2019, Brookfield sold its 45% interest to Macer Forest Holdings Inc. Macer is a private company that is known as a long-term investor in the forest products industry.

Of the CAD113 million debt owed by the company, over CAD91 million is due in October 2020. It is presumed that this will be refinanced without difficulty and this amount was originally denominated in U.S. dollars. The only other piece of significant debt is a CAD20.7 million term loan facility due in March 2025. Thus, the company should have no significant refinancing needs after October 2025. Balance sheet cash amounts to CAD12 million.

The timberland has been owned for a very long time, so there are no depletion charges and the firm only has a very small annual depreciation expense representing equipment that exists. This is the simplest example of timber companies with the highest yield. The revenue increase that would result if the price of timber were to go up would require no additional expenses. The revenue increase effectively would become earnings and dividend

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increases, and it would be a viable alternative to a bond with a very low yield. The Acadia share yields over 8%.

Post-Musings

THE TRAJECTORY OF PROCESS

In the field of energy, well-intentioned and perhaps even noble, non-governmental organizations are combining forces with many institutional investors to compel the reduction of the use of plastic in packaging in favor of more readily biodegradable wood fiber products. This will result in a diminution of plastic production.

In the field of wood fiber, well-intentioned and perhaps even noble, non-governmental organizations are combining forces with large corporate buyers of wood fiber and many institutional investors to compel the reduction in the annual timber harvest to sustainable levels. This has already resulted in a diminution of wood fiber production and will continue to do so.

In the field of monetary policy, the various central banks of the world are promoting maximum stimulus to increase worldwide consumer demand that will strengthen economies and increase employment. This will result in an increase in demand for packaging materials. Perhaps the packaging might be based on wood fiber or perhaps it will be based on plastics, but in any case, increased economic activity demands increased packaging.

In the field of investing, the well-intentioned thrust towards indexation has never been more powerful. In the indexes, wood fiber companies as well as energy companies have minimal exposure. At the same time, policies are adopted to increase demand for commodities while reducing production of those very same commodities to sustainable levels. One might be tempted to say that such sustainability policies are quite possibly not actually sustainable.

From the Readers

CRYPTOCURRENCY *WITH*, NOT AGAINST, FIAT BANKING AND CREDIT

Q: You talked about cryptocurrency side by side with banking, and about crypto and Visa. Jack Dorsey of Square Inc. (SQ) is a proponent of bitcoin through his network—I forget the name of it, and Square also enables buying and selling bitcoins in using the Square app. Does something like this fit in with the points you made?

A: It fits in exactly with this. It is just one more example; of course, I did not list them all. The existing fiat infrastructure is now basically accommodating crypto, which is an important change from a year ago. It looks like everybody is going in that direction, and the example you cite is just another instance of that.

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WEALTH INDEX (Ticker: RCH Index)

As of June 30, 2020

Annualized Total Return	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
Wealth Index	-7.25%	1.49%	3.28%	6.82%	11.04%	9.24%	7.31%	11.56%
S&P 500	7.51%	10.73%	10.73%	12.13%	13.99%	8.83%	5.91%	10.14%
S&P 500 Eq. Wgt.	-3.25%	5.43%	7.14%	9.67%	12.64%	8.79%	8.67%	11.43%
Russell 3000	6.53%	10.04%	10.03%	11.68%	13.72%	8.78%	6.15%	10.27%
Russell 2000	-6.63%	2.01%	4.29%	7.17%	10.50%	7.01%	6.69%	9.95%

Excess Return vs. S&P 500	-14.76%	-9.24%	-7.44%	-5.31%	-2.95%	0.41%	1.40%	1.42%
Excess Return vs. S&P 500 Eq. Wgt.	-4.01%	-3.95%	-3.86%	-2.85%	-1.60%	0.45%	-1.35%	0.13%
Excess Return vs. Russell 3000	-13.78%	-8.56%	-6.75%	-4.86%	-2.68%	0.47%	1.16%	1.29%
Excess Return vs. Russell 2000	-0.63%	-0.52%	-1.00%	-0.35%	0.54%	2.23%	0.63%	1.61%

*Note: Calculated Using Total Returns

Risk Adjusted Return	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
Wealth Index	(0.21)	0.06	0.16	0.36	0.60	0.45	0.33	0.56
S&P 500	0.34	0.43	0.73	0.90	1.04	0.60	0.40	0.70
S&P 500 Eq. Wgt.	(0.12)	0.28	0.43	0.64	0.83	0.51	0.50	0.71
Russell 3000	0.28	0.57	0.65	0.84	0.98	0.57	0.40	0.70
Russell 2000	(0.22)	0.09	0.21	0.38	0.56	0.35	0.34	0.52

*Note: Calculated As Annualized Total Return Divided By Annualized Total Return Volatility (Uses Monthly Total Returns)

Information Ratio	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
Wealth Index vs. S&P 500	(0.99)	(0.92)	(0.81)	(0.64)	(0.39)	0.05	0.13	0.14
Wealth Index vs. S&P 500 Eq. Wgt.	(0.45)	(0.62)	(0.63)	(0.51)	(0.30)	0.08	(0.15)	0.02
Wealth Index vs. Russell 3000	(1.04)	(0.96)	(0.83)	(0.67)	(0.40)	0.06	0.12	0.14
Wealth Index vs. Russell 2000	(0.10)	(0.10)	(0.19)	(0.06)	0.09	0.33	0.07	0.16

*Note: Calculated As Annualized Excess Total Return Divided By Annualized Excess Total Return Volatility (Uses Monthly Excess Total Returns)

Wealth Index Batting Average	Roll 1 Year	Roll 3 Year	Roll 5 Year
vs. S&P 500	52.48%	55.80%	58.31%
vs. S&P 500 Eq. Wgt.	52.48%	49.84%	49.49%
vs. Russell 3000	54.52%	55.80%	62.71%
vs. Russell 2000	56.27%	59.87%	66.44%

*Note: Calculated Using Total Returns

Annualized Volatility	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
Wealth Index	35.29%	24.49%	21.07%	18.60%	18.27%	20.40%	22.13%	20.65%
S&P 500	21.88%	16.95%	14.76%	13.41%	13.42%	14.71%	14.97%	14.45%
S&P 500 Eq. Wgt.	27.26%	19.74%	16.80%	15.14%	15.26%	17.25%	17.27%	16.15%
Russell 3000	23.25%	17.69%	15.36%	13.91%	13.96%	15.27%	15.47%	14.76%
Russell 2000	30.59%	22.93%	20.27%	18.64%	18.60%	19.76%	19.84%	19.06%

*Note: Calculated Using Total Returns

Annualized Tracking Error	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
vs. S&P 500	14.84%	10.05%	9.20%	8.30%	7.59%	8.95%	10.57%	9.99%
vs. S&P 500 Eq. Wgt.	8.88%	6.37%	6.12%	5.62%	5.26%	5.78%	8.75%	8.78%
vs. Russell 3000	13.28%	8.95%	8.16%	7.29%	6.70%	8.02%	9.75%	9.14%
vs. Russell 2000	6.28%	5.43%	5.33%	5.62%	5.92%	6.81%	9.21%	9.79%

*Note: Calculated Using Total Returns

Wealth Index Beta	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	20 Years	Since Incep. 1991 - Jun '20
vs. S&P 500	1.57	1.37	1.32	1.30	1.27	1.28	1.34	1.28
vs. S&P 500 Eq. Wgt.	1.29	1.22	1.22	1.21	1.16	1.14	1.19	1.17
vs. Russell 3000	1.49	1.33	1.30	1.29	1.24	1.25	1.32	1.29
vs. Russell 2000	1.14	1.04	1.01	0.97	0.93	0.97	1.01	0.96

*Note: Calculated Using Total Returns

Calendar Year Total Returns	Wealth Index	S&P 500	S&P 500 Eq. Wgt.	Russell 3000	Russell 2000	ER v. SP500	ER v. SP500 EW	ER v. R3000	ER v. R2000
1991	44.25%	30.47%	35.51%	33.68%	46.04%	13.78%	8.73%	10.57%	-1.80%
1992	20.20%	7.62%	15.63%	9.59%	18.41%	12.58%	4.56%	10.61%	1.79%
1993	3.38%	10.08%	15.12%	10.88%	18.88%	-6.70%	-11.75%	-7.50%	-15.50%
1994	0.33%	1.32%	0.95%	0.19%	-1.82%	-0.99%	-0.62%	0.14%	2.15%
1995	31.31%	37.58%	32.03%	36.80%	28.45%	-6.27%	-0.72%	-5.49%	2.86%
1996	23.09%	22.96%	19.02%	21.82%	16.49%	0.13%	4.06%	1.27%	6.59%
1997	27.31%	33.36%	29.05%	31.78%	22.36%	-6.06%	-1.74%	-4.48%	4.94%
1998	24.95%	28.58%	12.19%	24.14%	-2.55%	-3.63%	12.76%	0.81%	27.49%
1999	44.68%	21.04%	12.03%	20.90%	21.26%	23.64%	32.66%	23.78%	23.43%
2000	-19.16%	-9.10%	9.64%	-7.46%	-3.02%	-10.06%	-28.80%	-11.70%	-16.14%
2001	-10.80%	-11.89%	-0.39%	-11.46%	2.49%	1.08%	-10.41%	0.65%	-13.29%
2002	-15.49%	-22.10%	-18.18%	-21.54%	-20.48%	6.61%	2.69%	6.05%	4.99%
2003	45.41%	28.68%	40.97%	31.06%	47.25%	16.72%	4.44%	14.35%	-1.85%
2004	17.97%	10.88%	16.95%	11.95%	18.33%	7.09%	1.02%	6.02%	-0.36%
2005	3.30%	4.91%	8.06%	6.12%	4.55%	-1.61%	-4.76%	-2.82%	-1.25%
2006	22.61%	15.79%	15.80%	15.71%	18.37%	6.81%	6.81%	6.89%	4.24%
2007	1.73%	5.49%	1.53%	5.16%	-1.57%	-3.74%	0.20%	-3.41%	3.30%
2008	-43.67%	-37.00%	-39.72%	-37.31%	-33.79%	-6.68%	-3.95%	-6.37%	-9.89%
2009	72.80%	26.46%	46.31%	28.34%	27.17%	46.33%	26.49%	44.46%	45.62%
2010	31.51%	15.06%	21.91%	16.93%	26.55%	16.45%	9.60%	14.58%	4.65%
2011	5.11%	2.11%	-0.11%	1.03%	-4.18%	3.00%	5.22%	4.09%	9.29%
2012	13.53%	16.00%	17.65%	16.42%	16.35%	-2.48%	-4.13%	-2.89%	-2.62%
2013	41.08%	32.39%	36.16%	33.55%	38.62%	8.69%	4.92%	7.53%	2.25%
2014	7.06%	13.69%	14.49%	12.56%	4.89%	-6.63%	-7.43%	-5.50%	2.17%
2015	-6.87%	1.38%	-2.20%	0.48%	-4.41%	-8.26%	-4.67%	-7.35%	-2.46%
2016	16.85%	11.96%	14.80%	12.74%	21.31%	4.89%	2.05%	4.12%	-4.45%
2017	19.44%	21.83%	18.90%	21.13%	14.65%	-2.39%	0.54%	-1.69%	4.80%
2018	-13.80%	-4.38%	-7.64%	-5.24%	-11.01%	-9.42%	-6.16%	-8.56%	-2.79%
2019	26.38%	31.49%	29.24%	31.02%	25.52%	-5.10%	-2.85%	-4.80%	0.86%
2020 YTD	-14.35%	-3.08%	-10.77%	-9.48%	-12.98%	-11.27%	-3.58%	-10.87%	-1.37%

*Note: Calculated Using Total Returns

Source: Horizon Kinetics LLC, International Securities Exchange, Bloomberg

See important disclosures for additional information.

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Index Constituent Changes: 1. Nuveen Investments Inc (JNC US) was delisted from the US Security Exchange effective 11/14/2007 and has been removed from the index. 2. Alliance Financial Corp (ALNC US) was delisted from US Security Exchange effective 03/11/2013 and has been removed from the index. The divisor has been adjusted accordingly for each of these changes. 3. Fortress Investment Group (FIG US) was delisted from US Security Exchange effective 12/27/2017 and has been removed from the index.

Money Manager Index

From Aug 1983 to July 2020

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yr. End	Index	Yearly return	Annualized return (since inception)
1983								1.00	0.81	0.76	0.87	0.75	1983	0.75	(60.5)%	(50.2)%
1984	0.75	0.71	0.70	0.66	0.67	0.67	0.61	0.83	0.79	0.76	0.67	0.65	1984	0.65	(13.5)%	(26.5)%
1985	0.92	0.93	0.99	0.95	1.20	1.30	1.32	1.38	1.28	1.50	1.86	2.02	1985	2.02	211.8%	33.7%
1986	2.46	2.78	2.47	2.31	2.36	2.33	2.03	2.23	1.98	2.37	2.34	2.34	1986	2.34	15.9%	28.2%
1987	3.21	3.27	3.16	2.55	2.37	2.30	2.39	2.47	2.22	1.56	1.44	1.52	1987	1.52	(35.0)%	9.9%
1988	1.80	1.87	1.78	1.79	1.69	1.94	1.92	1.96	2.01	1.97	1.95	2.07	1988	2.07	36.0%	14.3%
1989	2.42	2.37	2.54	2.63	2.64	2.64	2.93	3.12	3.07	3.05	3.23	3.26	1989	3.26	57.8%	20.2%
1990	3.12	3.15	3.53	3.06	3.47	3.45	3.30	2.70	2.68	2.40	2.52	3.02	1990	3.02	(7.3)%	16.1%
1991	3.08	3.49	3.70	3.68	3.71	3.61	3.86	4.05	4.07	4.69	4.47	5.72	1991	5.72	89.4%	23.0%
1992	5.76	5.61	5.30	5.12	4.98	4.99	5.93	6.06	6.19	6.56	7.25	7.36	1992	7.36	28.6%	23.6%
1993	8.06	8.04	8.20	7.94	8.15	8.57	9.05	10.00	9.99	9.31	8.97	8.90	1993	8.90	21.0%	23.4%
1994	9.52	8.73	8.05	7.85	7.81	7.53	7.66	8.31	8.15	8.52	7.88	7.95	1994	7.95	(10.6)%	19.9%
1995	7.74	8.38	8.72	8.77	9.20	9.35	9.93	10.78	11.22	10.53	10.89	10.40	1995	10.40	30.8%	20.8%
1996	11.12	11.50	11.33	11.62	11.86	12.53	11.91	12.36	13.32	14.03	14.42	15.02	1996	15.02	44.4%	22.4%
1997	16.04	16.81	15.32	17.27	18.42	20.29	22.28	21.39	25.31	24.95	24.95	25.50	1997	25.50	69.8%	25.2%
1998	25.67	29.00	29.89	30.60	28.90	30.44	27.67	21.33	21.74	25.16	27.27	25.41	1998	25.41	(0.4)%	23.3%
1999	26.00	23.71	23.92	26.77	28.94	29.74	28.78	26.74	25.89	27.73	28.54	30.55	1999	30.55	20.2%	23.2%
2000	31.07	31.19	36.01	35.60	35.20	40.32	43.58	45.75	45.62	48.69	44.05	49.84	2000	49.84	63.1%	25.2%
2001	50.23	46.41	44.27	46.96	48.90	49.98	50.67	49.70	46.47	44.81	48.04	51.91	2001	51.91	4.2%	23.9%
2002	53.62	53.74	55.11	52.52	52.83	50.48	42.58	44.92	41.54	42.66	45.78	43.17	2002	43.17	(16.8)%	21.4%
2003	42.72	41.18	42.36	45.98	49.02	50.71	53.47	53.97	53.46	56.12	55.83	58.49	2003	58.49	35.5%	22.1%
2004	64.38	65.08	64.63	61.68	60.86	62.30	58.71	64.08	65.73	68.86	73.53	78.16	2004	78.16	33.6%	22.6%
2005	76.46	77.94	74.06	72.83	77.02	80.25	83.59	83.07	86.03	89.19	96.58	97.35	2005	97.35	24.6%	22.7%
2006	107.62	111.44	110.75	111.88	101.89	100.61	100.62	104.98	114.61	116.64	113.78	118.05	2006	118.05	21.3%	22.6%
2007	125.73	123.77	122.62	127.58	133.57	134.68	126.61	124.07	133.57	148.09	135.13	135.56	2007	135.56	14.8%	22.3%
2008	127.53	115.76	115.94	121.58	130.51	115.68	119.94	120.55	109.69	72.70	62.95	67.91	2008	67.91	(49.9)%	18.1%
2009	57.51	51.76	65.63	79.49	85.67	90.79	99.97	101.69	107.32	107.36	110.94	115.01	2009	115.01	69.4%	19.7%
2010	106.84	110.32	118.13	114.91	100.18	88.17	97.65	89.64	103.59	108.29	108.64	119.58	2010	119.58	4.0%	19.1%
2011	122.80	128.28	127.94	127.97	126.06	121.03	115.49	104.25	91.32	102.44	103.79	103.98	2011	103.98	(13.1)%	17.8%
2012	109.46	120.12	125.37	121.64	108.44	114.12	113.56	118.33	123.18	127.91	131.76	135.00	2012	135.00	29.8%	18.1%
2013	151.20	155.13	165.52	166.55	174.89	164.20	179.01	168.47	176.12	192.14	197.16	208.44	2013	208.44	54.4%	19.2%
2014	194.17	196.87	203.88	196.24	195.40	206.41	194.00	207.06	201.07	205.28	212.28	215.25	2014	215.25	3.3%	18.6%
2015	203.96	217.70	215.97	218.17	217.01	211.12	203.85	184.77	175.53	195.50	198.54	181.68	2015	181.68	(15.6)%	17.4%
2016	165.64	164.85	183.47	190.06	194.22	177.37	187.78	190.19	185.87	173.66	194.88	199.52	2016	199.52	9.8%	17.2%
2017	196.14	209.63	205.70	207.52	210.37	221.66	230.87	225.39	239.74	245.52	261.47	264.79	2017	264.79	32.7%	17.6%
2018	278.34	266.70	266.44	253.48	256.42	243.56	250.69	238.98	234.72	209.04	213.62	194.43	2018	194.43	(26.6)%	16.0%
2019	203.57	219.59	213.65	234.81	206.43	229.48	229.27	210.59	223.22	225.90	239.32	240.01	2019	240.01	23.4%	16.2%
2020	248.58	219.88	192.81	222.04	227.81	240.17	250.44						2020	250.44	4.3%	16.1%

S.No.	Ticker	Name	Amount Invested	Shares Purchased	Date of Investment	Current Index Value
1	AMG US Equity	Affiliated Manager	\$22,947	1,377	11/30/1997	\$ 94,711
2	BLK US Equity	BlackRock	\$23,205	1,658	9/30/1999	\$ 953,087
3	WDR US Equity	Waddell & Reed	\$27,513	1,587	3/31/1998	\$ 23,555
4	EV US Equity	Eaton Vance	\$2,641	3,998	1/31/1986	\$ 146,001
5	TROW US Equity	T. Rowe Price	\$2,423	2,014	4/30/1986	\$ 278,112
6	BEN US Equity	Franklin resources	\$908	1,263	4/30/1985	\$ 80,790
7	LM US Equity	Legg Mason	\$1,000	462	8/31/1983	\$ 23,105
8	FHI US Equity	Federated Hermes Inc	\$26,381	2,206	5/31/1998	\$ 58,152
9	PZN US Equity	Pzena Investment Management	\$122,426	6,317	10/31/2007	\$ 33,102

FIXED INCOME & CRYPTOCURRENCY COMPENDIUM

Index Constituent Changes: 1. New Star Asset Management (NSAM LN) was delisted from the London Security Exchange effective 03/10/2009 and has been removed from the index. 2. Australia Wealth Management (AUW AU) was delisted from Australian Security Exchange effective 05/18/2009 and has been removed from the index. 3. Bluebay Asset Management UNI (BBAY LN) was delisted from the London Security Exchange effective 12/20/2010 and has been removed from the index. 4. Everest Financial Group Limited (EFG AU) was delisted from the Australian Security Exchange effective 7/19/2011 and has been removed from the index. 5. RAB Capital Plc (RAB LN) was delisted from the London Security Exchange effective 9/2/2011 and has been removed from the index. 6. Invista Real Estate (INRE LN) was delisted effective 8/13/2012 and has been removed from the index. 7. F&C Asset Management Plc (FCAM LN) was delisted effective 5/8/2014 and has been removed from the index. 8. Charlemagne Capital Ltd (CCAP LN) was delisted effective 12/14/2016 and has been removed from the index. The divisor has been adjusted accordingly for each of these changes. 9. Henderson Group Plc (HGG LN) was delisted from London Security Exchange effective 5/30/2017 and has been removed from the Index. 10. Aberdeen Asset Management Plc (ADN LN) was delisted from London Stock Exchange effective 8/14/2017 and has been removed from the Index.

International Money Manager Index

From Nov 1986 to July 2020

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yr. End	Index	Yearly return	Annualized return (since inception)
1986											1.00	1.02	1986	1.02	10.0%	10.0%
1987	1.25	1.37	1.48	1.48	1.37	1.33	1.39	1.40	1.33	0.81	0.76	0.73	1987	0.73	(27.7)%	(23.3)%
1988	0.75	0.92	1.02	0.95	0.80	0.89	0.88	0.82	0.86	0.88	0.89	0.93	1988	0.93	26.4%	(3.4)%
1989	1.03	1.02	1.06	1.17	1.19	1.18	1.25	1.16	1.17	1.20	1.21	1.28	1989	1.28	37.8%	8.1%
1990	1.24	1.24	1.18	1.19	1.22	1.24	1.26	1.26	1.23	1.24	1.25	1.33	1990	1.33	3.7%	7.0%
1991	1.34	1.52	1.56	1.58	1.57	1.47	1.52	1.64	1.81	1.89	1.94	1.92	1991	1.92	44.8%	13.5%
1992	2.01	1.93	1.88	2.14	2.19	2.13	2.08	1.99	1.95	1.77	1.76	1.96	1992	1.96	1.9%	11.5%
1993	1.98	2.03	2.20	2.39	2.42	2.45	2.54	3.05	3.01	3.07	3.01	3.30	1993	3.30	68.7%	18.1%
1994	3.72	3.39	3.17	3.04	2.99	2.89	3.01	3.14	3.13	3.19	3.15	3.15	1994	3.15	(4.7)%	15.1%
1995	3.07	3.12	3.28	3.41	3.56	3.59	3.87	3.76	3.76	3.77	3.70	3.73	1995	3.73	18.6%	15.4%
1996	3.76	3.85	3.70	3.79	3.96	3.90	3.75	3.96	4.16	4.47	4.90	4.86	1996	4.86	30.3%	16.8%
1997	5.11	5.37	4.99	4.96	5.43	5.94	6.57	6.32	7.45	7.24	6.80	7.19	1997	7.19	47.9%	19.3%
1998	7.12	8.05	8.78	9.25	8.95	8.74	8.91	6.67	6.08	7.01	7.51	7.71	1998	7.71	7.3%	18.3%
1999	7.99	8.21	8.68	9.07	8.71	8.61	8.63	8.43	8.47	8.79	9.80	10.79	1999	10.79	39.9%	19.8%
2000	11.23	12.27	13.95	13.50	13.73	15.39	15.85	16.82	17.07	16.31	14.43	16.76	2000	14.43	33.8%	20.7%
2001	17.42	15.88	13.46	15.14	15.84	15.15	14.21	13.61	10.77	11.43	13.90	14.12	2001	14.12	(2.2)%	19.1%
2002	14.74	13.78	15.09	15.11	16.38	14.14	12.92	12.10	11.23	11.06	11.33	10.50	2002	10.50	(25.6)%	15.7%
2003	10.18	9.52	9.69	10.62	12.17	13.04	13.98	15.38	16.67	17.88	18.16	18.07	2003	18.07	72.1%	18.4%
2004	20.00	22.41	29.98	35.46	26.68	30.80	25.37	25.20	23.67	23.34	27.56	31.48	2004	31.48	74.2%	20.9%
2005	32.19	32.57	31.88	27.79	27.36	29.05	30.38	31.49	33.39	32.24	32.95	37.18	2005	37.18	18.1%	20.8%
2006	41.01	40.97	43.69	46.45	42.39	41.58	40.60	43.32	43.55	43.70	44.58	49.38	2006	49.38	32.8%	21.3%
2007	50.95	51.18	53.59	56.09	58.16	56.37	53.90	48.65	50.96	57.03	48.21	45.75	2007	45.75	(7.3)%	19.8%
2008	38.71	39.71	38.59	40.18	39.25	35.10	34.59	33.33	26.09	18.72	14.50	15.79	2008	15.79	(65.5)%	13.3%
2009	14.62	13.24	14.96	19.63	22.82	23.73	26.14	27.05	28.41	28.53	28.69	29.83	2009	29.83	89.0%	15.8%
2010	28.50	27.58	29.90	29.58	25.53	24.72	27.82	26.74	30.36	33.68	31.85	34.52	2010	34.52	15.7%	15.8%
2011	34.91	36.17	36.51	39.63	37.86	35.31	35.83	32.76	29.28	32.04	31.23	30.59	2011	30.59	(11.4)%	14.56%
2012	32.12	34.36	35.67	35.08	31.03	32.92	32.66	34.17	36.33	37.28	38.11	40.73	2012	40.73	33.1%	15.22%
2013	43.61	42.58	44.42	49.29	50.40	47.75	50.58	49.32	52.49	55.65	55.41	58.88	2013	58.88	44.6%	16.19%
2014	55.35	58.98	61.86	59.92	59.05	59.89	57.84	58.64	55.47	54.37	55.77	54.31	2014	54.31	(7.8)%	15.24%
2015	52.77	58.87	58.99	62.11	62.25	60.43	60.71	56.91	55.46	60.65	60.93	59.48	2015	59.48	9.5%	15.04%
2016	55.01	53.65	59.90	61.89	61.45	55.81	58.56	58.48	60.83	60.64	58.86	59.91	2016	59.91	0.7%	14.53%
2017	63.15	64.71	65.79	71.50	74.59	75.64	80.02	78.81	81.32	81.68	83.28	84.08	2017	84.08	40.3%	15.28%
2018	94.34	87.65	87.29	86.78	83.38	82.63	84.75	85.31	85.67	76.31	72.64	66.46	2018	66.46	(20.9)%	13.94%
2019	74.78	79.39	81.00	86.52	82.17	91.43	91.77	89.72	89.03	91.00	99.15	104.96	2019	104.96	57.9%	15.06%
2020	106.00	96.18	74.11	83.74	90.44	96.95	103.21						2020	103.21	(1.7)%	14.73%

S.No.	Ticker	Name	Initial Amount Invested	Shares Purchased	Date of Investment	Current Index Value
1	IGM CN Equity	IGM Financial Inc	\$1,000	73	31/11/1986	\$ 1,805
2	IVZ US Equity	Invesco Plc (Previously Amvescap)	\$1,357	1,153	1/31/1991	\$ 5,786
3	SDR LN Equity	Schroders Plc	\$1,208	505	3/31/1991	\$ 19,649
4	RAT LN Equity	Rathbone Brothers Plc	\$1,208	736	3/31/1991	\$ 15,642
5	CIX CN Equity	CI Financial Corp.	\$2,585	3,224	6/30/1994	\$ 44,307
6	EMG LN Equity	Man Group Plc	\$2,862	6,344	10/31/1994	\$ 7,836
7	AGF/B CN Equity	AGF Management Ltd-CI B	\$3,343	1,346	1/31/1996	\$ 5,394
8	8739 JP Equity	Sparx Group Co Ltd	\$11,762	108	12/31/2001	\$ 19,364
9	AZM IM Equity	Azimut Holding Spa	\$21,908	4,977	7/31/2004	\$ 94,463
10	PGHN SW Equity	Partners Group-Reg	\$36,848	578	3/31/2006	\$ 560,192
11	ASHM LN Equity	Ashmore Group Plc.	\$36,688	9,873	10/31/2006	\$ 50,588

FIXED INCOME & CRYPTOCURRENCY COMPENDIUM

This report was produced by Horizon Kinetics (“HK”). The following persons employed by HK contributed to this report: Murray Stahl, Chairman, Steven Bregman, President, and Peter Doyle, Managing Director. HK is located at 470 Park Avenue South, New York, NY 10016. At the time of this report, there are no planned updates to the recommendations. To the extent HK has provided previous recommendations concerning the same issuer(s) during the preceding 12-month period, such recommendations do not differ from the recommendations contained here.

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