

## Akamai Technologies, Inc. (NASDAQ : AKAM)



Target Price: \$105-110

Recommendation: **BUY** 

### **Investment Thesis**

We recommend a buy rating for Akamai Technologies driven by growth in Akamai's security and compute solutions and in international markets. Akamai has recently focused on adding more products and customers in these segments and we believe this will continue in the coming years.

#### **Investment Drivers**

Given the consistent innovative technology, profitability, and product growth, we believe that Akamai will continue its recent success. We believe this will be driven by double digit revenue growth in the Security Technology group for the next three years due to the opportunities present in the security market.

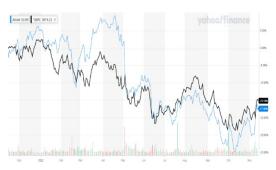
Once inflationary measures heal, we believe companies will be looking to expand and upgrade to the best technology. Akamai's Intelligent Edge Platform brings together their delivery, compute, and security solutions to offer their customers a quality range of products that others won't be able to compete with.

#### **Investment Risks**

High geopolitical tensions and the continued strength of the US Dollar vs other major currencies could damage consumer confidence and hinder our projected double digit revenue growth specifically relating to quickly growing international revenues in both revenue segments.

Cloud giants such as Amazon and Microsoft could integrate further into the cloud computing services that Akamai offers. They have penetrated markets in the past and have access to the best human and physical capital. This innovation would challenge the way Akamai maintains and adds market share in new areas.

#### Akamai vs. S+P 500 1-Year Returns



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#### **Company Description**

Akamai Technologies provides cloud computing products and solutions categorized into three groups: Security, Compute, and Delivery. The security group focuses on preventing online threats, including solutions such as bot mitigation, DDoS prevention and zero trust security. The delivery solutions involve providing their users with low latency media delivery and API protection. The compute group focuses on solutions delivering data to their users on the edge of the cloud for a faster experience. Their mission is to make digital experiences fast, intelligent, and secure [1].

### **Target Prices**

Current Price: \$93.35 DCF/EP: \$132.99 Relative P/E: \$93.90 DDM: \$91.94

#### **Performance Metrics & Key Ratios**

52-week range: \$76.28 - \$123.25

Beta: .836

Market Cap: 14.3 Billion Daily Volume: 1.56 Million Shares Outstanding: 157 Million

P/E Ratio: 21.70

Revenue (2021): 3.5 Billion Return on Equity (2021): 15.33% Debt to Equity ratio (2021): 63%

#### **Earnings estimates**

<u>▼</u> 202	2E 202	3E2024E	<u>▼</u> 2025E	2026	E <b></b> 2027E	<b>▼</b> 2028E	₩
EPS	3.57	4.25	5.57	6.71	7.42	8.03	8.56
EPS growth	-11.06%	19.19%	30.95%	20.63%	10.44%	8.23%	6.66%

### **Economic Analysis**

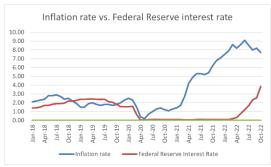
#### Inflation:

Measured by the CPI and PCE, inflation shows the increase in prices among goods and services in the US. The CPI is currently measured at 7.7% while the PCE is measured at 6.2% [5]. High inflation is bearish for the market because it reduces consumers' purchasing power and makes it harder for businesses to keep up with labor and input costs, lowering margins. Today's high inflation rates are primarily due to the increases in prices of energy and food stemming from pandemic-related supply chain issues and the Russian invasion of Ukraine.

While Akamai's customers aren't everyday consumers, this high inflation rate has a domino effect on the economy and will result in a bearish sentiment for the technology sector. We anticipate inflation stabilizing closer to 2% during Q4 2023 once the aggressive rate hiking environment has played its toll on consumers and the fed can start lowering rates again.

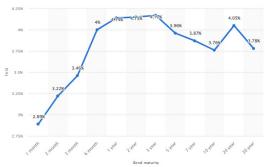
#### Fed Funds Rate / Yield Curves:

The Federal Reserve's goal is to stabilize prices and keep inflation around a constant 2%. They do this by setting a target for the federal funds rate. There have been four consecutive 75 bps rate hikes this year, which leaves the current target Fed Funds Rate at 375-400 bps [9]. This is likely to continue until inflation numbers are noticeably down and closer to 2%. With these rates high and increasing at the fastest rate in decades, borrowing costs are higher for Akamai's Capex and M+A expenditures. The chart below shows the inverse relationship current interest rates and the inflation rate and can explain some of the bearish action in today's market.



Source: Statista.Com

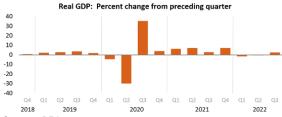
The yield curve shows the current yield of bonds, which is a good indicator to analyze where the economy and interest rates will end up. The yield curve is currently inverted, meaning shorter-term treasuries pay higher rates than longer-term treasuries. This specifically signals a weaker economy for the rest of 2022 and into most of 2023. Given the inverse relation between interest rates and inflation, it is another reason to believe the rate hiking environment and high inflation will be under control by Q4 2023. This will set up for a strong economic growth period in the coming years, resulting in bullish activity in the technology sector and stronger revenue growth from Akamai's products and solutions. The current yield curve is shown below and measures the yield on different bonds. 1-, 2- and 3-year treasuries are currently yielding a higher rate than 10-, 20- and 30-year treasuries [10].



Source: Statista.Com

### Real Gross Domestic Product (GDP):

Real GDP measures the inflation-adjusted total market value of goods and services produced by a country and is the most universal way of measuring the health and growth of an economy. It is a sum of four spending categories: Consumer Spending, Investments, Government Spending, and Net Exports. The market and technology sector positively react to GDP growth, and negatively to GDP decline. During Q1 and Q2 of 2022, real GDP in the United States declined at respective rates of 1.6% and .6%, and it rebounded in Q3 increasing 2.6% YOY [8].



Source: BEA.gov

Due to the slow economic growth in 2022 and other factors previously discussed, we expect a stagnant GDP for most of 2023. Once inflation has settled, the economy will be back in an expansionary period, resulting in more consumer and government spending thus increasing GDP in 2024. While a recession is looming currently, we believe this is just a sluggish period that won't take long to reverse. Given the positive relation to the technology sector, this will bode well for Akamai's growth in those years.

### Strength of US Dollar:

The dollar index (DXY) is commonly used and measures the USD against the world's most important currencies. The US Dollar has appreciated a lot this year against foreign currencies. This is because of the Fed's monetary policy due to high inflation. With US rates increasing faster than countries with different currencies, it makes US assets more attractive to foreign investors. This index is currently measured at 107, the highest it has been since 2002 [12].

This has a negative effect on companies like Akamai with international presences, as foreign consumers will pay less for US goods. Akamai will also incur larger foreign exchange translations when the USD is relatively stronger than currencies in this index. Going forward, we believe this index will come down to a steady rate around 100 during the middle of 2023, a little quicker than we expect the overall economy to recover. This is because countries with other currencies will be forced to combat their own inflationary problems. This will have a positive result on Akamai's international revenue in the coming years. When the index is closer to 100 in 2023, this will ensure Akamai's financial results that come with their international revenue growth.

## **Industry Analysis**

Akamai falls into the Technology sector and can be further defined in the Software and Services Industry group. A benchmark index we can measure the sector with is the Technology Sector SPDR Fund (XLK), which tracks the technology stocks in the S+P 500. The technology sector is more economically sensitive, meaning that it will likely outperform the market during bull markets and underperform during bear markets. This is mainly due to sales upgrade cycles, as all companies need to keep up with the best technology to compete when the economy is in expansionary periods. The following shows XLK's performance vs. SPY's performance in the last 10 years, proving this relationship and that Akamai will be better suited to succeed during bull markets [11].

SPY	XLK
1 Month	1 Month
10.48%	13.01%
3 Months	3 Months
-7.10%	-12.14%
YTD	YTD
-15.85%	-23.56%
1 Year	1 Year
-14.16%	-20.41%
3 Years	3 Years
10.25%	16.27%
5 Years	5 Years
10.82%	17.17%
10 Years	10 Years
13.39%	18.64%

Source: Etf.com

#### **Industry Trends:**

In the past companies stored data in their own company data warehouse. Now most companies have shifted to the cloud where they pay for data solutions to grow their business. Cloud computing treats data storage as a service rather than a product. Before cloud computing, the enduser had to be near the physical hardware used to store data to retrieve and process the data.

From a business perspective, this constraint served as a significant barrier to scalability and cross-functional collaboration between organizations. Cloud computing solved this problem by creating digital networks/servers through which all hosted users can access the stored data, eliminating the need for hardware in the data storage process. With mere access to a computer and an internet browser, cloud computing produces the capability to store and share files/data in real time. This capability makes data more secure, business operations more efficient, and scalability more attainable through increased ability to collaborate and share information among organizations.

Another recent trend is the growing presence of businesses switching to a work-from-home model. The number of people who regularly work from home grew by almost 20 million people in the last three years [4]. While COVID-19 shutdowns have gone down significantly, we do expect this to continue as many companies as possible and individuals have noticed the ease working from home. This will require more companies to consume third-party cloud computing services, such as the compute and security products Akamai offers. Akamai is significantly looking to increase their market share in the compute group for these reasons.

From a security perspective, we are seeing many increased and more sophisticated attacks against online websites and applications. With more data deployed on the cloud and on the edge, this allows a greater opportunity for cyber-attackers. Companies are already starting to conform, as cybersecurity is becoming an expense companies can no longer ignore.

In the delivery group, companies are differentiated based on the speed of the delivery and prices of their contracts. The barriers of entry are harder, as there are lots of development costs that go into building a network that can support high bandwidth. Customers will choose a content delivery network (CDN) based on the number of users on their service and how much they are willing to pay. This is a more consistent and predictable market given there aren't many large players. In 2020 and early 2021 however, CDN's experienced much larger traffic than usual. This resulted in higher revenue and higher operating costs for those years [3]. The CDN market has since settled, but 2020 was an outlier year for CDN companies.

### Industry Breakdown:

Companies in this Software Services industry differ by the type of service they offer, so it is best to analyze Akamai's competitors by each of their types of services. These three different types of cloud computing services are security solutions, edge computing and content delivery.

Within Akamai's narrow industry, there are few companies that offer the same three lines of products. Some close competitors focus strictly on security, while some focus strictly on content delivery. Akamai can be tied closest to companies like F5, Cloudflare, and Fastly who offer similar products and serve similar industries. Their customers are in a wide range of industries, but they primarily serve gaming and media companies, marketing and advertising companies, government, healthcare companies, ecommerce companies, and financial services [1].

#### **Competitive Analysis:**

Companies like these make money based off their contracts and are differentiated based on their qualities of solutions and prices of their plans. Akamai's plans are customizable based on the type of customer and their needs but are typically more expensive. Cloudflare, Fastly and F5 are more geared towards smaller companies who want cheaper solutions, while Akamai serves smaller companies and larger enterprises. Cloudflare, F5 and Fastly certainly pose a threat because they are rapidly taking up market share, but they're not all profitable yet and still in a growth phase. On top of that, Akamai already has an established customer base and years of profitability. This results in more cash to innovate further by expanding their products and solutions, make further acquisitions and spend on Research & Development. The following chart shows the percentage of sales spent on Research and Development between these companies in 2021. Akamai spends a much smaller amount of their total revenue on Research and Development showing their efficiency and opening them up to new paths of innovation going forward.

-				
				R+D
				(% of
Company	Market Cap	Revenue (2021)	<u>R+D</u>	Sales)
Akamai	13.7 B	\$3,461,223.00	\$335,372.00	9.69%
F5	8.6 B	\$2,603,416.00	\$512,627.00	19.69%
Cloudflare	19.8B	\$656,426.00	\$189,408.00	28.85%
Fastly	1.1B	\$354,330.00	\$126,859.00	35.80%

Source: KF Model

The data below shows the competition's international revenue for quarters 1-3 in 2022. All competitors are putting an emphasis on international expansion due to the opportunities in new markets. As of now, Akamai is enjoying a healthy gain of international revenues.

International expansion can be risky in today's environment with the strong USD, but Akamai's management stated that they are still planning to expand abroad due to the upside once exchange rates settle [2].

Q1-Q3 2022 (million)	International	International(of total %)	change to pior year(%)	
Akamai	\$ 1,269.63	47.22%	6.30%	
F5	\$ 910.09	45.60%	3.90%	
Fastly	\$ 231.80	26.00%	6.00%	
Cloudfare	\$ 329.65	47.00%	49.21%	

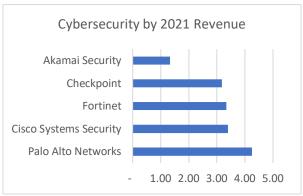
Source: KF Model

Assessing financial leverage of companies shows their levels of debt and how likely they are to meet their financial obligations [14]. To assess this, we calculated debt-to-equity ratios and debt percentages. The bankruptcy risk for Cloudflare is huge because their debt financing is twice higher than their equity financing. F5 has the lowest debt compared to peer companies, which leaves them the least risk for bankruptcy. During today's high interest rate environment, companies are best suited with lower percentages of debt as the borrowing costs for financing that debt are higher than usual.

Q1-Q3 2022 (million)	Debt	Debt(%)	Debt to Equity
Akamai	3,153.33	42.69%	74.49%
F5	619.63	21.06%	26.67%
Fastly	836.55	46.39%	86.51%
Cloudflare	1,567.57	72.52%	263.91%

Source: KF Model

On top of their direct competition is their competition in strictly the security and delivery spaces. Cybersecurity companies make their money from online entities that use their security products, so companies with a wide offering of strong products have an advantage. Some of the largest players in the field, such as Palo Alto, Cisco Systems, Checkpoint and Fortinet listed by revenue are as follow:



Source: KF Model

While there is clearly competition present in the security space, there is no clear leader. This gives plenty of opportunities for many companies in the industry to grow at a rapid rate, as the cybersecurity industry is projected to grow at a CAGR of 12%  $_{\rm [6]}$ . Akamai has recently focused on

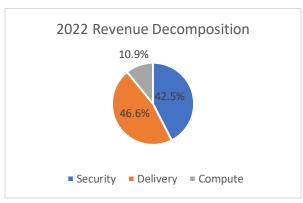
spending more money on resources that expand their security solutions because they offer the company a higher ROI and have the largest room for growth [2].

Outside of Cloudflare, F5 and Fastly, Akamai competes directly with Amazon Web Services (AWS) in the delivery space. AWS is a large player in the CDN market, but both companies have a slightly different competitive edge. Both AWS and Akamai offer contracts that are customizable and based on a pay-as-you-go plan. AWS offers free trials up to 12 months and tends to be cheaper but a bit slower. Akamai, on the other hand, offers more expensive plans with faster delivery and more security features to go along with it. This can be shown through their number of locations, or points of presence, where AWS has only 410 to Akamai's 1,300. This results in faster delivery across different parts of the globe [1,16].

## **Company Analysis**

#### Revenue decomposition:

Akamai separates their revenue into two groups: the Edge Technology Group (ETG) and the Security Technology Group (STG). The STG offers security solutions to prevent against online threats, while the ETG is comprised of both compute solutions and delivery solutions. ETG solutions focus on delivering low latency media on the edge of the cloud through Akamai's Intelligent Edge Platform. Akamai is increasing their relative amount of revenue that comes from security solutions, as the ETG and STG make up a similar amount of total revenue. The ETG is primarily driven by delivery, with compute solutions growing but only comprising of 10% of total revenue.



Source: KF Model

Akamai also has customers in over 130 countries. While their domestic presence is large, they have recently focused on adding more international customers. Akamai's revenue breaks into 47.22% US and 52.78% international based on revenue for the first three quarters in 2022, but

we expect international revenue to take a larger share going forward given this rapid growth.



Source: KF Model

#### Revenue Breakdown:

Akamai's delivery solutions include their Content Delivery Network (CDN), low latency media delivery and app and API performance. A CDN is essentially the backbone of the internet. It gives users across the globe access to websites, videos, etc. online. To do this, Akamai owns physical locations that put users near the closest server and allow faster access to content. Akamai's servers are located across the globe giving users in many countries' low latency delivery [1].

Akamai's compute solutions include serverless computing, edge applications, cloud optimization and cloud computing. Edge computing brings and stores data closer to a user's device than it would on the cloud, again offering a faster and more secure online experience for customers.

Akamai's biggest security solutions are zero trust security and DDoS prevention. Distributed Denial of Service (DDoS) is a type of cyberattack that tries to make a website or network resource unavailable by flooding it with malicious traffic so users can't access it [1]. This essentially acts as an online traffic jam. Some of these attacks can be threatening to the life of companies of many sizes. For every hour of a DDoS attack, it can cost a company around \$100,000 depending on the business [7]. Many customers have picked Akamai relying on their DDoS prevention while simultaneously relying on their CDN. If a customer uses Akamai for their CDN and DDoS prevention, they are more likely to use other security products, such as their Zero Trust security. Zero Trust secures users outside of a website until authenticated and continuously verified. Zero Trust takes maximum precaution when allowing users to gain access to a website by assuming that the user is hostile until they are authenticated [1]. This extra precautionary technology prevents unauthorized users that could be harmful for online entities and cost them large sums of money.

#### Revenue Forecasts:

We forecasted Akamai's revenues out seven years into the future before reaching a steady growth rate of 3.57%, which is very close to the economies steady state growth. Before that point, we believe Akamai has plenty of room to increase the revenue growth that they have experienced in the past few years. We expect a small amount of growth for 2022 but believe most headwinds will reverse by the end of 2023 and lead into a bull market and expansionary economic period in 2024 and 2025. Due to the technology sectors positive correlation with a strong economy, our growth rates were much larger in 2024 and 2025 compared to previous years. We also believe that the STG will account for larger growth rates because of the larger demand for those products and the opportunity within that industry. The ETG is heavily weighted by delivery products, which is a more consistent market, thus easier to predict. We expect delivery to increase by a small amount as CDN revenues remain fairly steady and compute maintains its healthy increase.

	▼ 2022E ▼	2023E	2024E 💌	2025E <u></u>	2026E	2027E 🔼	2028E 🔼
Total revenue	3,502	3,785	4,195	4,562	4,792	4,998	5,177
Total revenue growth rate	1.17%	8.08%	10.85%	8.75%	5.03%	4.31%	3.57%
Edge Technology	2,020	2,081	2,185	2,250	2,318	2,376	2,423
Edge Technology growth rate	-5.00%	3.00%	5.00%	3.00%	3.00%	2.50%	2.00%
Security Technology	1,482	1,704	2,011	2,312	2,474	2,623	2,754
Security Technology growth rat	te 11.00%	15.00%	18.00%	15.00%	7.00%	6.00%	5.00%

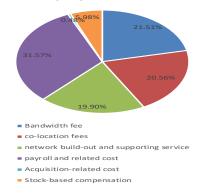
Source: KF Model

### **Expense Analysis:**

Akamai's operating expenses come from cost of revenue, SG+A, depreciation and research and development costs. They have found ways to cut some costs efficiently, but their acquisitions have a small impact on these costs. Cost of revenue, the largest expense, can be broken down further into network bandwidth costs, payroll costs, colocation costs and network build-out costs [3].

Network bandwidth costs come from the telecommunication network providers. Expected higher traffic levels and serving traffic from higher cost regions cause these costs to increase, but they have kept these costs under control by lowering cost per unit investing in internal-use software. Co-location costs come from the datacenters located around the world used to house their servers. Network build-out costs consist of maintenance costs incurred when increasing network locations. Given these costs directly relate to revenue, we forecasted cost of revenue as a historical average of revenue.





Source: KF Model

## **Mergers and Acquisitions**

Akamai recently made two large acquisitions in 2021: Guardicore and Linode. These acquisitions were bought with all cash and financed by convertible senior notes. Guardicore and Linode help diversify their security and compute product lines which generates more revenue and expands Akamai's customer base. We believe this is a big contributor to the revenue growth that we forecasted in 2024 and 2025.

### **Guardicore:**

In October 2021, Akamai acquired Guardicore for \$610.7 million in cash. Guardicore's solutions expand the STG's products and solutions and are designed to limit user access only to applications that are authorized to communicate with each other. This limits the spread of malware and protects the flow of enterprise data across the network.

Guardicore has already won over big customers for Akamai. This has a positive effect for the company because more customer wins mean they are more likely to use other Akamai products. Guardicore was already responsible \$14 million of revenue in Q3 2022.

#### Linode:

On February 15, Akamai announced an agreement for Akamai to acquire Linode in exchange for \$898.5 million in cash. Linode is an infrastructure-as-a-service (laaS) platform provider that falls into Akamai's growing Compute solutions under the ETG. They allow developer-friendly cloud computing capabilities, which is intended to enhance Akamai's edge computing services by enabling it to create unique cloud platform to build, ruin and secure applications from the cloud to the edge.

Akamai is integrating Linode's existing infrastructure into their intelligent edge platform currently. This will enable them to provide lower latency, higher throughput, and improved egress economic. It helps accelerate Akamai's compute business, which falls into the Edge Technology Group. Linode has already added \$68.9 to Akamai's income for Akamai for Q1-Q3 in 2022 [3].

#### Recent Earnings Highlights:

Akamai recently reported their earnings for Q3 of 2022. They reported revenue of \$882 million, up 3% YoY and 7% in constant currency. Security solutions were up 13% Year-over-Year and was driven by strong growth in Zero Trust products and other Guardicore solutions. Compute solutions were up 72% Year-over-Year and was driven by Linode's solutions, as they are working on transferring Linode's existing infrastructure and seeing the growth that comes with it. Delivery solutions were down 15% Year-over-Year, as this was mainly due to a deceleration in traffic from the outlier growth seen in 2020 and 2021. Because of this decline, Akamai has denied some customers with extreme traffic peaks to focus on higher quality for their more important customers [2].

Akamai's guidance was slightly up for Q4, as they raised their revenue outlook from -2% to 1%. This is a small increase but shows that they are still having some success in this difficult environment. They won over several large customers in Q3, which gives them a stronger outlook going forward. Some of these customers include very large international banks, as well as large broadcasting, and energy companies. These companies switched to Akamai because of some of their new products that come with recent acquisitions, as well as the quality and speed of their media delivery [2].

### S.W.O.T Analysis

There are many ways to look at future growth. Many fierce competitors are present within Akamai's product lines. However, Akamai is also better suited than them for many reasons. Because of that, it is essential to analyze the future in terms of strengths, weaknesses, opportunities, and threats.

#### Strengths:

Akamai's strengths come from their years of consistent profitability, strong customer base and recent growth. They have proved to be a global and reliable leader in content delivery and rapidly bringing together a diverse product line of other security and edge solutions to create Akamai's Intelligent Edge Platform. On top of this, they have minimal debt compared to companies looking to disrupt the market, which will help them stay afloat during difficult times. Akamai's consistency and recent growth can be shown through the chart below, which shows their increase in both revenue and net income over the last seven years.



Source: KF Model

#### Weaknesses:

Some of Akamai's weaknesses have exposed themselves during 2022. Foreign exchange fluctuations are now projected to have a \$130 million impact on revenues in 2022 [2]. That large of a number not only affects their net income and EPS, but it also affects their margins that will help grow their business. Another weakness is the decline in delivery revenue. Akamai had a double-digit revenue loss Year-over-Year in Q3 which can be concerning because their CDN has been the most established part of their business for years [3].

#### Opportunities:

The security and compute businesses offer a wide range of opportunities. Akamai's edge computing solutions are currently only around 10% of their revenue, but management stated that it is possible for compute to be the largest product line 3-5 years down the road  $_{[2]}$ . The cloud computing industry has a lot of room to grow due to the evolving technology and data storage on the edge of the cloud.

There are also several opportunities in security, including the increased DDoS attacks. Not only has the amount of total DDoS attacks increased from 9.5 million to 13.9 million in 2022, but the industries affected are the exact customers that Akamai serves. In 2021 the most targeted DDoS attacks were towards gaming and retail, government, healthcare, technology, and financial service companies [7,13]. Companies in those industries that choose not to get the best security may experience more malicious and harmful attacks. This makes the security group somewhat of a recession-proof industry and less susceptible to fluctuations during bear markets.

#### Threats:

Amazon Web Services (AWS) and other cloud giants pose a big threat going forward. These mega-cap companies have a history of integrating into different markets and stealing market cap from established leaders. These companies are much larger than Akamai and have access to more physical capital to deploy towards R+D. While AWS is slightly

differentiated in their competitive edge, this could change going forward. Growth companies like Cloudflare also pose a threat due to their triple digit sales increases and rapid expansion into Akamai's market.

There are also threats in terms of the foreign exchange rates. If the economic and political turmoil in Europe gets worse, this will have a negative effect on the income from international operations and could potentially hinder growth abroad.

#### **Valuation Model**

#### DCF/EP Model:

We used the DCF/EP model to predict the target price for Akamai as of today. The implied price per share is \$132.99 for this model.

The Discounted Cash Flow (DCF) model uses the sum of Akamai's future Free Cash Flows (FCF's) discounted by the WACC to predict the present value of all future cash flows. This determines the present value of Akamai's operating assets. Then we adjusted for all non-operating items, such as the value of non-operating assets, the value of debt, and other non-operating items to determine the value of equity. By dividing by the total outstanding number of shares, we arrived at the final value of \$132.99, which is around 40% higher than the Akamai's current price of \$93.35. The EP model gives us the same intrinsic value, but by using the sum of the economic profits discounted by the WACC and adjusting for all other non-operating items.

#### WACC:

To calculate the weighted average cost of capital (WACC), we used a weighted average of the cost of equity and cost of debt. To calculate cost of equity, we used the CAPM model. This takes the risk-free rate plus the beta multiplied by the equity risk premium. We used US 10-year treasury bonds as the risk-free rate and the 94-year geometric average for the equity risk premium to get to a final cost of equity of 8.17%. Akamai doesn't have any outstanding bonds, so we used the YTM on outstanding CRWD bonds maturing 2029 as our pre-tax cost of debt. After multiplying the marginal tax effect, we arrived at a 5.18% after-tax cost of debt. To reach our final value, we used a weighted average of the debt and equity on Akamai's balance sheet to reach a WACC of 7.69%.

### **Discount Dividend Model:**

We used the Dividend Discount Model (DDM) to predict the implied price as of today for Akamai of \$83.95. This model implies that Akamai's stock price is overvalued compared to the current price, but we are not as concerned with this model because Akamai has never paid a dividend and does not intend to pay dividends in the future.

#### Relative P/E:

For the Relative P/E model, we compared companies that have similar metrics and compete with Akamai. This includes Cloudflare, F5, Fastly, CrowdStrike, Jack Henry and Associates, HubSpot, Trimble, PTC and Microsoft. We used these companies to determine the average P/E for similar sized companies within the industry, as all these companies focus on cloud computing technology. Microsoft is a much larger firm, but it was important to include one of the cloud giants to compare a more mature company. We deleted several outliers that have huge P/E or negative P/E ratios which was likely due to those companies being less developed and in the growth stage. The average P/E ratio for the 5 appropriate comparable firms is 26.33X for P/E 22 and 23.81x for P/E 23. These two numbers are close to Akamai's current P/E ratio. The implied relative target price for this model in 2022 is \$93.92 and \$101.22 in 2023. We believe this is an accurate price for Akamai as of today given the consistency within comparable firms.

We favored the Relative P/E and DCF/EP models when considering our target price because the DDM doesn't apply to Akamai. These different models both show that Akamai is undervalued, but at different levels. We feel our target price of \$105-\$110 is more realistic because this meets our two models in the middle and takes the future change of the industry into factor.

## **Sensitivity Tables**

### Beta vs Equity Risk Premium:

Both Beta and Equity Risk Premium are negatively correlated with price. When the equity risk premium rises it in turn decreases Akamai's PV of future cash flows. When Beta increases it calls for a higher required return for its investors creating a higher cost of equity driving the price downward. If equity risk premium were to increase by 0.21% and beta increase by .32% the projected stock price decreases by 28.09%. Little fluctuations in either Akamai's Beta or Equity risk premium will drastically affect the company's Projected stock price.

		Equity Risk Premium										
	132.99	4.96%	5.03%	5.10%	5.17%	5.24%	5.31%	5.38%				
	0.58	184.76	182.81	180.90	179.03	177.19	175.38	173.62				
	0.64	170.48	168.62	166.79	165.00	163.25	161.53	159.84				
B 94 B	0.71	158.12	156.34	154.59	152.88	151.21	149.57	147.96				
	0.77	147.31	145.61	143.94	142.30	140.70	139.13	137.60				
	0.84	137.79	136.16	134.56	132.99	131.46	129.96	128.49				
8	0.90	129.33	127.76	126.23	124.73	123.26	121.82	120.42				
	0.96	121.77	120.26	118.79	117.35	115.94	114.57	113.22				
	1.03	114.97	113.52	112.11	110.73	109.37	108.05	106.75				
	1.09	108.83	107.43	106.07	104.74	103.44	102.17	100.92				
	1.16	103.24	101.90	100.59	99.31	98.06	96.83	95.63				

#### Marginal tax rate vs CV NOPLAT

CV for NOPLAT is a terminal growth percentage used for calculating NOPLAT after the last fiscal year. As the CV percentage fluctuates it causes drastic fluctuations in projected price. This is because NOPLAT is the main driver that factors into the DCF/EP valuation method. The higher CV % the higher AKAMs price. Marginal Tax rate also has a positive cocreation with price which is expected. For a small rise in marginal tax rate means a small increase in top marginal tax rates would raise revenues. This is also seen in the chart by AKAM's future stock price having minor fluctuations corresponding to the changes in marginal tax rate.

		Forcasted Marginal Tax Rate										
	132.99	1.20%	5.60%	10.00%	14.40%	18.80%	23.20%	27.60%				
₹ [	0.84%	99.06	99.60	100.14	100.69	101.25	101.83	102.41				
ξ	1.57%	106.86	107.53	108.20	108.89	109.59	110.30	111.03				
<u> </u>	2.30%	116.73	117.57	118.43	119.31	120.20	121.12	122.05				
-	3.03%	129.60	130.71	131.84	132.99	134.17	135.38	136.61				
KINON IS UMBER	3.76%	147.10	148.61	150.16	151.75	153.38	155.05	156.76				
	4.49%	172.26	174.47	176.73	179.06	181_46	183.93	186.48				
3	5.22%	211.56	215.08	218.73	222.51	226.42	230.48	234.70				

#### Capex Guidance vs WACC:

WACC has a negative correlation with price. This is expected because when WACC increases it causes the present value of cashflows to decrease. As WACC increases and decreases it significantly affects Akamai's projected stock price. When increasing WACC by 0.67% at a capex guidance of 13% the project stock price decreases by 13.92%. When testing Capex Guidance, we also found it to have negative correlation with projected stock price.

	Capex Guidence										
132.99	7.00%	9.00%	11.00%	13.00%	15.00%	17.00%	19.00%				
5.66%	249.79	248.80	247.80	246.81	245.81	244.82	243.82				
6.33%	196.30	195.45	194.60	193.76	192.91	192.06	191.71				
7.00%	160.91	160.15	159.40	158.65	157.89	157.14	156.39				
7.67%	135.76	135.08	134.39	133.71	133.02	132.34	131.66				
8.34%	116.99	116.35	115.72	115.09	114.45	113.82	113.19				
9.01%	102.44	101.85	101.26	100.66	100.07	99.47	98.88				
9.68%	90.85	90.29	89.72	89.16	88.60	88.04	87.47				
	5.66% 6.33% 7.00% 7.67% 8.34% 9.01%	5.66% 249.79 6.33% 196.30 7.00% 160.91 7.67% 135.76 8.34% 116.99 9.01% 102.44	5.66% 249.79 248.80 6.33% 196.30 195.45 7.00% 160.91 160.15 7.67% 135.76 135.08 8.34% 116.99 116.35 9.01% 102.44 101.85	132.99   7.00%   9.00%   11.00%   5.66%   249.79   248.80   247.80   6.33%   169.30   195.45   194.60   7.00%   160.91   160.15   159.40   7.67%   135.76   135.08   134.39   134.39   146.35   115.72   9.01%   102.44   101.85   101.26	132.99         7.00%         9.00%         11.00%         13.00%           5.66%         249.79         248.80         247.80         246.81           6.33%         196.30         195.45         194.60         193.76           7.00%         160.91         160.15         159.40         158.65           7.67%         135.76         135.08         134.39         133.71           8.34%         116.99         116.35         115.72         115.09           9.01%         102.24         101.85         101.26         100.66	132.99   7.00%   9.00%   11.00%   13.00%   15.00%	5.66%         249.79         248.80         247.80         246.81         245.81         244.82           6.33%         196.30         195.45         194.60         193.76         192.91         192.06           7.00%         160.91         160.15         159.40         188.65         157.89         157.14           7.67%         135.76         135.08         134.39         133.71         133.02         132.34           8.34%         116.99         116.35         115.72         115.09         114.45         133.82           9.01%         102.44         101.85         101.26         100.66         100.07         99.47				

#### Capex Average vs Cost of Revenue Average:

The capex average and cost of revenue both negatively correlate with price which is expected especially with Akamai's cost of revenue due to it being a expense. When a company increases its capex requirement it forces the business to have lower levels of free cash flow which explained its negative correlation with price. We wanted to see how big of an impact fluctuating the cost of revenue would have on Akamai's projected stock price. However, changing the cost of revenue did not have as great of an impact on the projected stock price as we anticipated. When increasing the Cost of Revenue percentage by 4.13% AKAMS' price decreased by 14.93%.

		Cost of Revenue Average									
	\$ 132.99	8.74%	12.87%	17.00%	21.13%	25.26%	29.39%	33.52%			
	3.80%	222.60	202.74	182_87	163.01	143.15	123.28	103.42			
	5.64%	215.10	195.23	175.37	155.50	135.64	115.78	95.91			
	7.48%	207.59	187.73	167.86	148.00	128.14	108.27	88.41			
	9.32%	200.09	180.22	160.36	140.50	120.63	100.77	80_91			
•	11.16%	192.58	172.72	152.85	132.99	113.13	93.26	73.40			
3	13.00%	185.08	165.21	145.35	125.49	105.62	85.76	65.90			
A Kada	14.84%	177.57	157.71	137.85	117.98	98.12	78.26	58.39			
	16.68%	170.07	150.21	130.34	110.48	90.61	70.75	50.89			
	18.52%	162.56	142.70	122 84	102.97	83.11	63.25	43.38			
	20.36%	155.06	135.20	115.33	95.47	75.61	55.74	35.88			

#### CV R&D vs CV G&A:

With research and development and general and administrative being some of Akamai's biggest expenses, we felt these variables were critical to test. When changing the continuing value year in each variable, we see that both research and development and general and administrative had a negative correlation in price. This was the expected outcome for they are both expenses. Increasing the terminal price for research and development by 0.97% results in Akamai's projected price decreasing by 3.5%. When testing the terminal price for general and administrative by 0.97% the price we were given the same result with projected price decreasing by 3.5%

	Cv Research and Development										
	132.99	5.52%	6.49%	7.46%	8.43%	9.40%	10.37%	11.34%			
General and Iministrative	15.72%	160_98	156.32	151.65	146.99	142.32	137.66	132.99			
	16.69%	156.32	151.65	146.99	142.32	137.66	132.99	128.33			
	17.66%	151.65	146.99	142.32	137.66	132.99	128.33	123.66			
	18.63%	146.99	142.32	137.66	132.99	128.33	123.66	119.00			
o E	19.60%	142.32	137.66	132.99	128.33	123.66	119.00	114.33			
इ. इ	20.57%	137.66	132.99	128.33	123.66	119.00	114.33	109.67			
	21.54%	132.99	128.33	123.66	119.00	114.33	109.67	105.00			

### Disclaimer

This report was created by students enrolled in the Applied Equity Valuation class at the University of Iowa. The report was originally created to offer an internal investment recommendation for the University of Iowa Krause Fund and its advisory board. The report also provides potential employers and other interested parties an example of the students' skills, knowledge and abilities. Members of the Krause Fund are not registered investment advisors, brokers or officially licensed financial professionals. The investment advice contained in this report does not represent an offer or solicitation to buy or sell any of the securities mentioned. Unless otherwise noted, facts and figures included in this report are from publicly available sources. This report is not a complete compilation of data, and its accuracy is not guaranteed. From time to time, the University of Iowa, its faculty, staff, students, or the Krause Fund may hold a financial interest in the companies mentioned in this report.

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Sensitivity Tables

Beta

1.03

1.09

1.16

114.97 113.52

107.43

101.90

108.83

103.24

				Forcaste	d Marginal	Tax Rate		
	132.99	1.20%	5.60%	10.00%	14.40%	18.80%	23.20%	27.60%
/ Growth of NOPLAT	0.84%	99.06	99.60	100.14	100.69	101.25	101.83	102.41
	1.57%	106.86	107.53	108.20	108.89	109.59	110.30	111.03
	2.30%	116.73	117.57	118.43	119.31	120.20	121.12	122.05
	3.03%	129.60	130.71	131.84	132.99	134.17	135.38	136.61
/ G	3.76%	147.10	148.61	150.16	151.75	153.38	155.05	156.76
5	4.49%	172.26	174.47	176.73	179.06	181.46	183.93	186.48
	5.22%	211.56	215.08	218.73	222.51	226.42	230.48	234.70

			Equit	y Risk Prem	ium		
132.99	4.96%	5.03%	5.10%	5.17%	5.24%	5.31%	5.38%
0.58	184.76	182.81	180.90	179.03	177.19	175.38	173.62
0.64	170.48	168.62	166.79	165.00	163.25	161.53	159.84
0.71	158.12	156.34	154.59	152.88	151.21	149.57	147.96
0.77	147.31	145.61	143.94	142.30	140.70	139.13	137.60
0.84	137.79	136.16	134.56	132.99	131.46	129.96	128.49
0.90	129.33	127.76	126.23	124.73	123.26	121.82	120.42
0.96	121.77	120.26	118.79	117.35	115.94	114.57	113.22

112.11 110.73

104.74

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96.83

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95.63

				Ca	pex Guiden	ice		
132.	99	7.00%	9.00%	11.00%	13.00%	15.00%	17.00%	19.00%
5.669	%	249.79	248.80	247.80	246.81	245.81	244.82	243.82
6.339	%	196.30	195.45	194.60	193.76	192.91	192.06	191.21
7.009	%	160.91	160.15	159.40	158.65	157.89	157.14	156.39
7.679	%	135.76	135.08	134.39	133.71	133.02	132.34	131.66
8.349	%	116.99	116.35	115.72	115.09	114.45	113.82	113.19
9.019	%	102.44	101.85	101.26	100.66	100.07	99.47	98.88
9.689	%	90.85	90.29	89.72	89.16	88.60	88.04	87.47

_				Cv Resear	ch and Deve	elopment		
	132.99	5.52%	6.49%	7.46%	8.43%	9.40%	10.37%	11.34%
	15.72%	160.98	156.32	151.65	146.99	142.32	137.66	132.99
ve v	16.69%	156.32	151.65	146.99	142.32	137.66	132.99	128.33
al a rati	17.66%	151.65	146.99	142.32	137.66	132.99	128.33	123.66
cv General and Administrative	18.63%	146.99	142.32	137.66	132.99	128.33	123.66	119.00
mi Ge	19.60%	142.32	137.66	132.99	128.33	123.66	119.00	114.33
≥ &	20.57%	137.66	132.99	128.33	123.66	119.00	114.33	109.67
	21.54%	132.99	128.33	123.66	119.00	114.33	109.67	105.00

			Cost of	Revenue A	verage		
\$ 132.99	8.74%	12.87%	17.00%	21.13%	25.26%	29.39%	33.52%
3.80%	222.60	202.74	182.87	163.01	143.15	123.28	103.42
5.64%	215.10	195.23	175.37	155.50	135.64	115.78	95.91
7.48%	207.59	187.73	167.86	148.00	128.14	108.27	88.41
9.32%	200.09	180.22	160.36	140.50	120.63	100.77	80.91
11.16%	192.58	172.72	152.85	132.99	113.13	93.26	73.40
13.00%	185.08	165.21	145.35	125.49	105.62	85.76	65.90
14.84%	177.57	157.71	137.85	117.98	98.12	78.26	58.39
16.68%	170.07	150.21	130.34	110.48	90.61	70.75	50.89
18.52%	162.56	142.70	122.84	102.97	83.11	63.25	43.38
20.36%	155.06	135.20	115.33	95.47	75.61	55.74	35.88

Revenue Decomposition

Fiscal Years Ending Dec. 31	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Total	2,894	3,198	3,461	3,502	3,785	4,195	4,562	4,792	4,998	5,177
Total revenue growth rate	6.60%	10.52%	8.23%	1.17%	8.08%	10.85%	8.75%	5.03%	4.31%	3.57%
Edge Technology	2,045	2,137	2,126	2,020	2,081	2,185	2,250	2,318	2,376	2,423
Edge Technology growth rate		4.5%	-0.5%	-5.0%	3.0%	5.0%	3.0%	3.0%	2.5%	2.0%
Security Technology	849	1,062	1,335	1,482	1,704	2,011	2,312	2,474	2,623	2,754
Security Technology growth rate		25.1%	25.7%	11.0%	15.0%	18.0%	15.0%	7.0%	6.0%	5.0%

Akamai Technologies
Income Statement (In Thousands)

Fiscal Years Ending Dec. 31	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Revenue	2,893,617	3,198,149	3,461,223	3,501,736	3,784,588	4,195,327	4,562,461	4,791,824	4,998,212	5,176,852
Cost of operating expenses:										
Cost of revenue	585,531	696,332	766,343	739,917	799,683	886,473	964,048	1,012,512	1,056,122	1,093,869
Depreciation expense	402,093	436,340	502,613	460,299	428,192	426,559	438,218	458,085	479,556	501,464
Research & development	261,365	269,315	335,372	295,196	319,041	353,666	384,615	403,951	421,349	436,409
Sales & marketing	523,883	510,405	461,967	465,464	468,960	472,457	475,953	479,450	482,946	486,443
General & administrative	516,093	547,888	553,024	652,373	705,069	781,589	849,987	892,717	931,167	964,447
Amortization of acquired intangible assets	38,581	42,049	48,019	48,100	43,500	38,900	35,800	31,000	31,000	31,000
Restructuring charge (benefit)	17,153	37,286	10,737	10,737	10,737	10,737	10,737	10,737	10,737	10,737
Total cost & operating expenses	2,344,699	2,539,615	2,678,075	2,672,086	2,775,182	2,970,380	3,159,358	3,288,451	3,412,877	3,524,369
Income (loss) from operations	548,918	658,534	783,148	829,650	1,009,406	1,224,946	1,403,103	1,503,373	1,585,335	1,652,483
Interest income	34,355	29,122	15,620	-	-	-	-	-	-	-
Interest expense	49,364	69,120	72,332	172,966	191,818	193,146	196,063	200,954	206,196	211,520
Other income (expense), net	(1,428)	(2,454)	1,785	-	-	-	-	-	-	-
Income (loss) before provision (benefit) for income taxes	532,481	616,082	728,221	656,684	817,588	1,031,801	1,207,041	1,302,419	1,379,139	1,440,963
Provision (benefit) for income taxes	53,350	45,922	62,571	94,563	171,694	216,678	253,479	273,508	289,619	302,602
Loss from equity method investment	(1,096)	(13,106)	(14,008)	-	-	-	-	-	-	-
Net income (loss)	478,035	557,054	651,642	562,122	645,895	815,123	953,562	1,028,911	1,089,520	1,138,361
Net income per share:										
Weighted average shares outstanding - basic	162,706	162,490	162,665	157,621	151,936	146,396	141,934	138,632	135,580	132,758
Year end shares outstanding	162,001	162,710	160,512	154,730	149,143	143,650	140,218	137,046	134,113	131,402
Net income (loss) per share - basic	2.94	3.43	4.01	3.57	4.25	5.57	6.72	7.42	8.04	8.57

Balance Sheet (In Thousands)

Fiscal Years Ending Dec. 31	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Assets										
Current assets:										
Cash & cash equivalents	393,745	352,917	536,725	440,740	528,358	707,991	1,213,306	1,805,412	2,464,463	3,181,768
Marketable securities	1,143,249	745,156	541,470	263,979	263,979	263,979	263,979	263,979	263,979	263,979
Accounts receivable, net	551,943	660,052	675,926	673,388	727,781	806,766	877,367	921,474	961,162	995,515
Prepaid expenses & other current assets	142,676	171,406	166,313	183,512	198,335	219,861	239,101	251,121	261,937	271,298
Total current assets	2,231,613	1,929,531	1,920,434	1,561,619	1,718,453	1,998,597	2,593,752	3,241,985	3,951,541	4,712,560
Property & equipment, gross	3,031,063	3,520,090	3,794,576	4,249,802	4,672,162	5,140,360	5,649,531	6,184,298	6,742,099	7,319,835
Accumulated depreciation & amortization	1,878,910	2,041,818	2,260,247	2,720,546	3,148,737	3,575,296	4,013,514	4,471,599	4,951,155	5,452,619
Property & equipment, net	1,152,153	1,478,272	1,534,329	1,529,256	1,523,424	1,565,064	1,636,017	1,712,700	1,790,944	1,867,216
Operating lease right-of-use assets	758,450	793,945	815,754	813,057	809,956	832,095	869,818	910,588	952,188	992,740
Marketable securities	835,384	1,398,802	1,088,048	1,088,048	1,088,048	1,088,048	1,088,048	1,088,048	1,088,048	1,088,048
Goodwill	1,600,265	1,674,371	2,156,254	2,763,828	2,763,828	2,763,828	2,763,828	2,763,828	2,763,828	2,763,828
Acquired intangible assets, net	179,431	234,724	313,225	265,125	221,625	182,725	146,925	115,925	84,925	53,925
Deferred income tax assets	76,528	106,918	168,342	195,616	222,889	250,163	277,437	304,710	331,984	359,258
Other assets	173,062	147,567	142,287	159,547	172,435	191,149	207,876	218,327	227,730	235,869
Total assets	7,006,886	7,764,130	8,138,673	8,376,095	8,520,659	8,871,669	9,583,701	10,356,111	11,191,188	12,073,444
Liabilities + Stockholders' Equity										
Current liabilities:										
Accounts payable	138,946	118,546	109,928	122,030	131,887	146,200	158,994	166,987	174,180	180,405
Total accrued expenses	334,861	380,468	411,590	390,652	422,206	468,028	508,985	534,573	557,598	577,526
Deferred revenue	71,223	76,600	86,517	89,519	96,750	107,251	116,636	122,500	127,776	132,343
Operating lease liabilities	139,463	154,801	175,683	161,045	160,430	164,815	172,287	180,363	188,603	196,635
Other current liabilities	8,843	27,755	6,623	15,735	17,007	18,852	20,502	21,533	22,460	23,263
Total current liabilities	693,336	758,170	790,341	778,981	828,280	905,147	977,405	1,025,955	1,070,616	1,110,172
Deferred revenue	4,368	5,262	25,342	9,771	10,561	11,707	12,731	13,371	13,947	14,446
Deferred income tax liabilities	29,187	37,458	40,974	50,296	61,738	75,783	93,024	114,187	140,165	172,052
Convertible senior notes	1,839,791	1,906,707	1,976,167	2,283,037	2,308,368	2,332,417	2,372,080	2,414,220	2,456,817	2,497,959
Operating lease liabilities	692,181	715,404	707,087	726,464	723,693	743,474	777,180	813,607	850,777	887,010
Other long-term liabilities	58,858			0	0	0	0	0	0	0
Other liabilities	90,065	89,833	68,748	82,882	82,882	82,882	82,882	82,882	82,882	82,882
Total liabilities	3,348,928	3,512,834	3,608,659	3,931,430	4,015,522	4,151,410	4,315,302	4,464,223	4,615,203	4,764,520
Stockholders' Equity:										
Additional paid-in capital + Common stock	3,655,106	3,666,447	3,342,427	3,368,930	3,383,507	3,383,507	3,383,507	3,383,507	3,383,507	3,383,507
Accumulated other comprehensive income (loss)	(45,144)	(20,201)	(69,105)	(143,079)	(143,079)	(143,079)	(143,079)	(143,079)	(143,079)	(143,079)
Retained earnings (accumulated deficit)	47,996	605,050	1,256,692	1,218,814	1,264,709	1,479,831	2,027,971	2,651,460	3,335,557	4,068,496
Total stockholders' equity (deficit)	3,657,958	4,251,296	4,530,014	4,444,665	4,505,137	4,720,259	5,268,399	5,891,888	6,575,985	7,308,924
Total liabilities and stockholders' equity	7,006,886	7,764,130	8,138,673	8,376,095	8,520,659	8,871,669	9,583,701	10,356,111	11,191,188	12,073,444

Historical Cash Flow Statement (In Thousands)

Fiscal Years Ending Dec. 31	2015	2016	2017	2018	2019	2020	2021
Cash flows from operating activities:							
Net income (loss)	321,406	316,132	218,321	298,373	478,035	557,054	651,642
Adjustments to reconcile net income to net cash provided by operating activities:							
Depreciation & amortization	299,563	334,302	372,313	434,520	440,674	478,389	550,632
Stock-based compensation expense	126,677	144,506	164,308	183,813	187,140	197,411	202,759
Excess tax benefit from stock-based compensation	(29,301)	(5,514)	-	_	-	-	-
Provision (benefit) for deferred income taxes	4,098	7,308	(869)	2,339	933	(33,821)	(47,794)
Amortization of debt discount & issuance costs	18,525	18,638	18,839	41,958	45,857	62,823	66,025
Other non-cash reconciling items, net	5,804	10,574	10,068	12,078	4,744	23,027	21,823
Accounts receivable	(56,247)	3,356	(63,825)	(30,445)	(64,471)	(90,381)	(24,096)
Prepaid expenses & other current assets	7,137	23,881	(22,311)	(4,132)	11,689	(25,395)	4,034
Accounts payable & accrued expenses	51,624	18,491	33,232	42,238	8,769	39,211	31,523
Deferred revenue	3,224	(1,213)	1,142	(919)	(13,547)	(1,318)	(2,865)
Other current liabilities	(345)	5,484	16,378	9,422	(17,230)	18,101	(20,404)
Other non-current assets & liabilities	11,986	(9,647)	21,422	14,142	(28,073)	(10,101)	(28,716)
Net cash flows from operating activities	764,151	866,298	800,983	1,008,327	1,058,304	1,215,000	1,404,563
Cash flows from investing activities:							
Cash paid for acquisitions, net of cash acquired	(141,147)	(95,439)	(369,073)	(79)	(165,329)	(127,999)	(598,825)
Cash paid for asset acquisition	-	-	-	-	-	(36,376)	-
Cash paid for equity method investment	-	-	-	-	(36,008)	-	-
Purchases of property & equipment (CAPEX)	(311,676)	(180,949)	(254,146)	(217,609)	(359,667)	(514,313)	(328,969)
Capitalization of internal-use software development costs	(133,307)	(135,340)	(160,632)	(188,132)	(202,410)	(217,559)	(216,261)
Purchases of short & long-term marketable securities	(692,879)	(781,061)	(326,497)	(873,697)	(1,990,148)	(1,782,849)	(932,604)
Proceeds from sales of short & long-term marketable securities	-	57,740	219,916	16,569	856	30,350	442,133
Proceeds from maturities & redemptions of short- & long-term marketable securities	843,931	664,837	432,853	758,481	1,084,373	1,597,651	991,949
Other cash flows from investing activities, net	(2,494)	782	(2,098)	(2,066)	399	8,121	(4,322)
Net cash flows from investing activities	(435,564)	(469,430)	(459,677)	(506,533)	(1,667,934)	(1,042,974)	(646,899)
Cash flows from financing activities:							
Proceeds from the issuance of convertible senior notes	-	-	-	1,132,185	1,135,629	-	-
Proceeds from the issuance of warrants	-	-	-	119,945	185,150	-	-
Purchase of note hedge related to convertible senior notes	-	-	-	(261,740)	(312,225)	-	-
Repayment of convertible senior notes	-	-	-	-	(690,000)	-	-
Proceeds related to the issuance of common stock under stock plans	61,791	59,560	55,680	62,608	57,112	59,775	59,632
Excess tax benefits from stock-based compensation	29,301	5,514	-	-	-	-	-
Employee taxes paid related to net share settlement of stock-based awards	(54,164)	(45,545)	(58,395)	(64,305)	(75,266)	(89,828)	(99,112)
Repurchases of common stock	(302,606)	(373,794)	(361,194)	(750,000)	(334,519)	(193,588)	(522,255)
Other cash flows from financing activities, net	(2,050)	-	(1,096)	(5,085)	(1,558)	-	(268)
Net cash flows from financing activities	(267,728)	(354,265)	(365,005)	233,608	(35,677)	(223,641)	(562,003)
Effects of exchange rate changes on cash, cash equivalents & restricted cash	(10,036)	(7,907)	12,912	(12,844)	2,466	10,935	(11,376)
Net increase (decrease) in cash, cash equivalents & restricted cash	50,823	34,696	(10,787)	722,558	(642,841)	(40,680)	184,285
Cash, cash equivalents & restricted cash at beginning of year	238,650	289,473	324,169	314,429	1,036,987	394,146	353,466
Cash, cash equivalents & restricted cash at end of year	289,473	324,169	313,382	1,036,987	394,146	353,466	537,751

Forecasted Cash Flow Statement

Fiscal Years Ending Dec. 31	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Cash flows from operating activities:							
Net income (loss)	562,122	645,895	815,123	953,562	1,028,911	1,089,520	1,138,361
Add: Adjustments for Non-cash operating expenses:							
Depreciation & amortization	508,399	471,692	465,459	474,018	489,085	510,556	532,464
Changes in deferred taxes	(17,952)	(15,831)	(13,228)	(10,033)	(6,111)	(1,296)	4,614
Add: Changes in working capital accounts							
Accounts Receivable	2,538	(54,393)	(78,986)	(70,600)	(44,107)	(39,689)	(34,353)
Prepaid Expenses + Other Operating Current Assets	(17,199)	(14,823)	(21,525)	(19,240)	(12,020)	(10,816)	(9,362)
Accounts Payable	12,102	9,857	14,314	12,794	7,993	7,192	6,225
Accrued Expense	(20,938)	31,555	45,822	40,957	25,588	23,025	19,929
Other current operating liabilities	9,112	1,271	1,846	1,650	1,031	927	803
Deferred Revenue (short term)	3,002	7,231	10,500	9,386	5,863	5,276	4,567
Deferred Revenue (long term)	(15,571)	789	1,146	1,024	640	576	498
Net cash provided by operating activities:	1,025,615	1,083,242	1,240,470	1,393,518	1,496,873	1,585,271	1,663,747
Add: Cash from investing activities							
(Increase) decrease in ST investments	277,491	-	-	-	-	-	-
(Increase) decrease in LT investments	-	-	-	-	-	-	-
(increase) decrease in Operating right-use asset	2,697	3,101	(22, 138)	(37,723)	(40,770)	(41,600)	(40,552)
Capital expenditures (Changes in Gross PPE)	(455,226)	(422,360)	(468, 198)	(509,171)	(534,768)	(557,800)	(577,737)
Capitalization of intangible assets (Changes in intangibles)	0	0	0	0	0	0	0
Business acquisitions (Changes in goodwill)	(607,574)	-	-	-	-	-	-
(Increase) Decrease in other assets	(17,260)	(12,887)	(18,714)	(16,728)	(10,450)	(9,404)	(8,139)
Net cash used for investing activities:	(799,872)	(432,147)	(509,051)	(563,622)	(585,988)	(608,804)	(626,427)
Add: Cash from financing activities							_
Proceeds from issuance (payment) of convertble senior notes	306,870	25,331	24,049	39,663	42,140	42,597	41,142
Changes in current portion of operating lease LT debt	(14,638)	(614)	4,385	7,472	8,075	8,240	8,032
Proceeds from issuance (payment) of operating lease LT debt	19,377	(2,770)	19,781	33,706	36,428	37,170	36,233
Proceeds from issuance of common stock (ESOP exercises)	26,503	14,577	-	-	-	-	-
Increase in other liabilities	14,134	-	-	-	-	-	-
Repurchases of common stock	(600,000)	(600,000)	(600,000)	(405,422)	(405,422)	(405,422)	(405,422)
Changes in AOCI	(73,974)	0	0	0	0	0	0
Net cash used by financing activities:	(321,729)	(563,476)	(551,786)	(324,582)	(318,779)	(317,416)	(320,015)
Change in cash	(95,985)	87,619	179,633	505,314	592,106	659,051	717,304
Add: Cash at beginning of the year	536,725	440,740	528,358	707,991	1,213,306	1,805,412	2,464,463
Cash at the end of the year	440,740	528,358	707,991	1,213,306	1,805,412	2,464,463	3,181,768

Common Size Income Statement (In Thousands)

100%
21.13%
9.69%
8.43%
9.40%
18.63%
0.60%
0.21%
68.08%
31.92%
0.00%
4.09%
0.000%
27.83%
5.85%
21.99%
8. 9. 18. 0. 68. 31. 0. 4. 0.0 27. 5.

Balance Sheet (In Thousands)

Fiscal Years Ending Dec. 31	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Assets										
Current assets:										
Cash & cash equivalents	13.61%	11.04%	15.51%	12.59%	13.96%	16.88%	26.59%	37.68%	49.31%	61.46%
Marketable securities	39.51%	23.30%	15.64%	7.54%	6.98%	6.29%	5.79%	5.51%	5.28%	5.10%
Accounts receivable, net	19.07%	20.64%	19.53%	19.23%	19.23%	19.23%	19.23%	19.23%	19.23%	19.23%
Prepaid expenses & other current assets	4.93%	5.36%	4.81%	5.24%	5.24%	5.24%	5.24%	5.24%	5.24%	5.24%
Total current assets	77.12%	60.33%	55.48%	44.60%	45.41%	47.64%	56.85%	67.66%	79.06%	91.03%
Property & equipment, gross	104.75%	110.07%	109.63%	121.36%	123.45%	122.53%	123.83%	129.06%	134.89%	141.40%
Accumulated depreciation & amortization	64.93%	63.84%	65.30%	77.69%	83.20%	85.22%	87.97%	93.32%	99.06%	105.33%
Property & equipment, net	39.82%	46.22%	44.33%	43.67%	40.25%	37.30%	35.86%	35.74%	35.83%	36.07%
Operating lease right-of-use assets	26.21%	24.83%	23.57%	23.22%	21.40%	19.83%	19.06%	19.00%	19.05%	19.18%
Marketable securities	28.87%	43.74%	31.44%	31.07%	28.75%	25.93%	23.85%	22.71%	21.77%	21.02%
Goodwill	55.30%	52.35%	62.30%	78.93%	73.03%	65.88%	60.58%	57.68%	55.30%	53.39%
Acquired intangible assets, net	6.20%	7.34%	9.05%	7.57%	5.86%	4.36%	3.22%	2.42%	1.70%	1.04%
Deferred income tax assets	2.64%	3.34%	4.86%	5.59%	5.89%	5.96%	6.08%	6.36%	6.64%	6.94%
Other assets	5.98%	4.61%	4.11%	4.56%	4.56%	4.56%	4.56%	4.56%	4.56%	4.56%
Total assets	242.15%	242.77%	235.14%	239.20%	225.14%	211.47%	210.06%	216.12%	223.90%	233.22%
Liabilities + Stockholders' Equity										
Current liabilities:										
Accounts payable	4.80%	3.71%	3.18%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%	3.48%
Total accrued expenses	11.57%	11.90%	11.89%	11.16%	11.16%	11.16%	11.16%	11.16%	11.16%	11.16%
Deferred revenue	2.46%	2.40%	2.50%	2.56%	2.56%	2.56%	2.56%	2.56%	2.56%	2.56%
Operating lease liabilities	4.82%	4.84%	5.08%	4.60%	4.24%	3.93%	3.78%	3.76%	3.77%	3.80%
Other current liabilities	0.31%	0.87%	0.19%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%
Total current liabilities	23.96%	23.71%	22.83%	22.25%	21.89%	21.58%	21.42%	21.41%	21.42%	21.44%
Deferred revenue	0.15%	0.16%	0.73%	0.28%	0.28%	0.28%	0.28%	0.28%	0.28%	0.28%
Deferred income tax liabilities	1.01%	1.17%	1.18%	1.44%	1.63%	1.81%	2.04%	2.38%	2.80%	3.32%
Convertible senior notes	63.58%	59.62%	57.09%	65.20%	60.99%	55.60%	51.99%	50.38%	49.15%	48.25%
Operating lease liabilities	23.92%	22.37%	20.43%	20.75%	19.12%	17.72%	17.03%	16.98%	17.02%	17.13%
Other long-term liabilities	2.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other liabilities	3.11%	2.81%	1.99%	2.37%	2.19%	1.98%	1.82%	1.73%	1.66%	1.60%
Total Debt				90.54%	84.36%	77.25%	72.80%	71.13%	69.95%	69.18%
Total liabilities	115.74%	109.84%	104.26%	112.27%	106.10%	98.95%	94.58%	93.16%	92.34%	92.04%
Stockholders' Equity:										
Additional paid-in capital + Common stock	126.32%	114.64%	96.57%	96.21%	89.40%	80.65%	74.16%	70.61%	67.69%	65.36%
Retained earnings (accumulated deficit)	1.66%	18.92%	36.31%	34.81%	33.42%	35.27%	44.45%	55.33%	66.74%	78.59%
Total stockholders' equity (deficit)	126.41%	132.93%	130.88%	126.93%	119.04%	112.51%	115.47%	122.96%	131.57%	141.18%
Total liabilities and stockholders' equity	242.15%	242.77%	235.14%	239.20%	225.14%	211.47%	210.06%	216.12%	223.90%	233.22%

Weighted Average Cost of Capital (WACC) Estimation

Market Value of the Firm	17,827,297,337.60	100.00%
MV of Total Debt	2,858,937,000.00	16.04%
Long-Term Debt	2,683,254	Convertible senior notes & LT operating lease liabilitie
Current Portion of LTD	175,683	Short-term operating lease liabilities
Short-Term Debt		
Market Value of Debt:		
MV of Equity	14,968,360,337.60	83.96%
Current Stock Price	\$93.35	
<b>Total Shares Outstanding</b>	160,346,656	
Market Value of Common Equity:		MV Weights
After-Tax Cost of Debt	5.18%	
Marginal Tax Rate	14%	
Pre-Tax Cost of Debt	6.05%	YTM on outstanding CRWD bonds maturing 2029
Implied Default Premium	2.20%	
Risk-Free Rate	3.85%	US 10Y Treasury Yield
Cost of Debt:		
Cost of Equity	8.17%	
Equity Risk Premium	5.17%	94-year geometric average
Beta	0.84	2 year weekly raw beta (Source: Bloomberg)
Risk-Free Rate	3.85%	US 10Y Treasury Yield
		ASSUMPTIONS:

Relative Valuation Models

			EPS	EPS		
Ticker	Company	Price	2022E	2023E	P/E 22	P/E 23
NET	盒CLOUDFLARE, INC. (XNYS:NET)	\$ 53.71	<del>\$0.03</del> -	<del>\$0.09</del>	1,790.33	<del>- 596.78</del>
FFIV	盒 F5, INC. (XNAS:FFIV)	\$ 149.91	\$10.81	\$11.60	13.87	12.92
FSLY	盒 FASTLY, INC. (XNYS:FSLY)	\$ 9.96	<del>(\$0.65)</del>	<del>(\$0.44)</del>	<del>(15.32)</del>	<del>(22.64)</del>
CRWD	<b>盒</b> CROWDSTRIKE HOLDINGS, INC. (XNAS:CRW	\$ 143.12	<del>\$1.32</del>	<del>\$1.87</del>	<del>108.42</del>	<del>76.53</del>
JKHY	<b></b> JACK HENRY & ASSOCIATES, INC. (XNAS:JKH	\$ 174.49	\$4.94	\$5.06	35.32	34.48
HUBS	<b>☆</b> HUBSPOT, INC. (XNYS:HUBS)	\$ 306.09	<del>\$2.28</del>	<del>\$2.83</del>	<del>- 134.25</del>	<del>108.16</del>
TRMB	<u>侖</u> TRIMBLE INC. (XNAS:TRMB)	\$ 62.00	\$2.70	\$3.01	22.96	20.60
PTC	盒 PTC INC. (XNAS:PTC)	\$ 131.92	\$4.58	\$5.17	28.80	25.52
MSFT	盒 MICROSOFT CORPORATION (XNAS:MSFT)	\$ 247.11	\$8.05	\$9.68	30.70	25.53
			A	Average	26.33	23.81
盒 AKAMAI TECHNOLOGIES, INC.	Akamai Technologies	\$93.35	\$3.57	\$4.25	26.2	22.0
Implied Relative Value: P/E (EPS22) P/E (EPS23)			\$ 93.90 \$ 101.22			

Dividend Discount Model (DDM) or Fundamental P/E Valuation Model

Fiscal Years Ending Dec. 31	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
EPS	\$ 3.57	\$ 4.25	\$ 5.57	\$ 6.72	\$ 7.42	\$ 8.04	\$ 8.57			
EPS g										
Key Assumptions										
CV growth of EPS	3.03%									
CV Year ROE	17.31%									
Cost of Equity	8.17%									
Future Cash Flows										
P/E Multiple (CV Year)							16.05			
EPS (CV Year)							\$ 8.57			
Future Stock Price							\$ 137.62			
Dividends Per Share	0.00	0.00	0.00	0.00	0.00	0.00				
<b>Discounted Cash Flows</b>	0	0	0	0	0	0	85.91			
Intrinsic Value as of Last FYE	\$ 85.91									
Implied Price as of Today	\$ 91.94									

Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models

Key Inputs	Key	In	pu	ts
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ey Inputs:	
CV Growth of NOPLAT	3.03%
CV Year ROIC	46.33%
WACC	7.69%
Cost of Equity	8.17%

Fiscal Years Ending Dec. 31	2022E	2023E	2024E	2025E	2026E	2027E	2028E
DCF Model:							
Free Cash Flow (FCF)	666,606	732,860	829,069	953,756	1,062,815	1,136,235	1,203,675
Continuing Value (CV)	000,000	732,000	023,003	333,730	1,002,013	1,130,233	26,474,528
PV of FCF	618,989	631,901	663,793	709,077	733,716	728,370	16,971,186
	,	, , ,	,	, -		-,-	-,- ,
Value of Operating Assets:	21,057,032						
Non-Operating Adjustments:							
(+) Excess cash	154,778						
(+) ST Investments	541,470						
(+) LT Investments	1,088,048						
(-) ESOP	(55,067)						
(-) Convertible Senior Notes	(1,976,167)						
(-) PV of lease liabilities	(882,770)						
Value of Equity	19,927,323,277						
Shares Outstanding	160,346,656						
Intrinsic Value of Last FYE	\$ 124.28						
Implied Price as of Today	\$ 132.99						
EP Model:							
Economic Profit (EP)	518,539	618,846	787,240	920,843	992,215	1,052,010	1,101,484
Continuing Value (CV)	0_0,000	020,000	,	0_0,000		_,,,,,,,,,	23,623,635
PV of EP	481,499	533,593	630,303	684,607	684,977	674,379	15,143,655
Total PV of EP	10 022 012						
Invested Capital (last FYE)	18,833,013 2,224,019						
Value of Operating Assets:	21,057,032						
Non-Operating Adjustments	(1,129,709)						
Non-Operating Adjustments	(1,129,709)						
Value of Equity	19,927,323,277						
Value of Equity							
Shares Outstanding Intrinsic Value of Last FYE	\$ 160,346,656 \$ 124.28						
Implied Price as of Today	\$ 132.99						

Key Management Ratios

Fiscal Years Ending Dec. 31	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Liquidity Ratios:										
Current ratio (Current assets / Current liabilities)	3.22	2.54	2.43	2.00	2.07	2.21	2.65	3.16	3.69	4.24
Cash Ratio ((Cash + Marketable securities) / Current liabilities)	2.22	1.45	1.36	0.90	0.96	1.07	1.51	2.02	2.55	3.10
Operating Cash flow Liquidity(cash flow from operating/current liabilities)	1.53	1.60	1.78	1.32	1.31	1.37	1.43	1.46	1.48	1.50
Asset-Management Ratios:										
Total Asset Turnover Ratio (Sales Rev / Total Assets)	0.41	0.41	0.43	0.42	0.44	0.47	0.48	0.46	0.45	0.43
Accounts Receivable Turnover Ratio (Sales rev / AR)	5.24	4.85	5.12	5.20	5.20	5.20	5.20	5.20	5.20	5.20
Net Working Capital Ratio (Current Assets- Current Liabilites) / Assets	0.22	0.15	0.14	0.09	0.10	0.12	0.17	0.21	0.26	0.30
Financial Leverage Ratios:										
Debt-to-equity ratio (total debt / total equity)	0.73	0.65	0.63	0.71	0.71	0.69	0.63	0.58	0.53	0.49
Debt-to-assets ratio (Total Debt / Total Assets)	0.48	0.45	0.44	0.47	0.47	0.47	0.45	0.43	0.41	0.39
Asset to Equity ratio ( total assets / total equity)	1.92	1.83	1.80	1.88	1.89	1.88	1.82	1.76	1.70	1.65
Profitability Ratios:										
Return on Equity (NI/Beg Equity)	14.98%	15.23%	15.33%	12.41%	14.53%	18.09%	20.20%	19.53%	18.49%	17.31%
Gross profit margin ((Net sales - COGS) / Net sales)	79.76%	78.23%	77.86%	78.87%	78.87%	78.87%	78.87%	78.87%	78.87%	78.87%
Return on Assets (NI/average total assets)	8.06%	9.39%	10.98%	9.47%	10.89%	13.74%	16.07%	17.34%	18.36%	19.18%
Net Profit Margin (Net Profit/Revenue)	16.52%	17.42%	18.83%	16.05%	17.07%	19.43%	20.90%	21.47%	21.80%	21.99%

**Akamai Technologies**Present Value of Operating Lease Obligations

Fiscal Years Ending Dec. 31	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Year 1	300	310	320	330	40,728	52,456	53,410	50,187	54,561	390	400
Year 2	250	260	270	280	40,916	51,978	45,202	49,418	78,683	340	350
Year 3	225	230	235	240	40,510	43,683	44,586	61,031	75,991	270	275
Year 4	175	180	185	190	32,972	39,800	54,206	58,680	72,579	220	225
Year 5	100	104	108	112	29,723	19,487	54,934	56,211	70,101	136	140
Thereafter	290	300	310	320	38,412	72,117	533,088	481,471	599,339	380	390
Total Minimum Payments	1,340	1,384	1,428	1,472	223,261	279,521	785,426	756,998	951,254	1,736	1,780
Less: Cumulative Interest	240	248	256	264	39,511	54,307	279,569	252,414	315,452	311	318
PV of Minimum Payments	1,100	1,136	1,172	1,208	183,750	225,214	505,857	504,584	635,802	1,425	1,462
Implied Interest in Year 1 Payment		67	69	71	73	11,117	13,625	30,604	30,527	38,466	86
Pre-Tax Cost of Debt	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%	6.05%
Years Implied by Year 6 Payment	2.9	2.9	2.9	2.9	1.3	3.7	9.7	8.6	8.5	2.8	2.8
Expected Obligation in Year 6 & Beyond	100	104	108	112	29,723	19,487	54,934	56,211	70,101	136	140
Present Value of Lease Payments											
PV of Year 1	283	292	302	311	38,405	49,463	50,363	47,324	51,448	368	377
PV of Year 2	222	231	240	249	36,381	46,217	40,192	43,940	69,962	302	311
PV of Year 3	189	193	197	201	33,965	36,625	37,382	51,170	63,713	226	231
PV of Year 4	138	142	146	150	26,068	31,466	42,855	46,392	57,381	174	178
PV of Year 5	75	78	81	83	22,158	14,528	40,953	41,905	52,260	101	104
PV of 6 & beyond	193	200	206	213	26,774	46,916	294,111	273,852	341,038	254	260
Capitalized PV of Payments	1,100	1,136	1,172	1,208	183,750	225,214	505,857	504,584	635,802	1,425	1,462

Effects of ESOP Exercise and Share Repurchases on Common Stock Account and Number of Shares Outstanding

Number of Options Outstanding (shares):	1,000
Average Time to Maturity (years):	1.55
Expected Annual Number of Options Exercised:	645

Current Average Strike Price:	\$ 41.08
Cost of Equity:	8.17%
Current Stock Price:	\$93.35

Fiscal Years Ending Dec. 31	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Shares Outstanding (end of the year)	154,730	149,143	143,650	140,218	137,046	134,113	131,402	128,896	126,579	124,437

Valuation of Options Granted under ESOP

Current Stock Price	\$93.35
Risk Free Rate	3.85%
Current Dividend Yield	0.00%
Annualized St. Dev. of Stock Returns	39.42%

		Average	Average	B-S	Value
Range of	Number	Exercise	Remaining	Option	of Options
<b>Outstanding Options</b>	of Shares	Price	Life (yrs)	Price	Granted
Range 1	1.000	41.08	1.55 \$	55.07 \$	55,067

Total	1,000 \$	41.08	1.55 \$	55.07	\$ 55,067